DOCUMENT RESUME

ED 038 921 HE 001 467

TITLE	Academic Development Plan II for the University of Hawaii.
INSTITUTION	Hawaii Univ., Honolulu. Academic Development Planning Commission.
PUB DATE	Mar 69
NOTE	176p.
EDRS PRICE	EDRS Price MF-$0.75 HC-$8.90
DESCRIPTORS	Community Service Programs, Curriculum Development, *Educational Planning, Enrollment Projections, Financial Policy, *Higher Education, *Master Plans, *Planning, *Program Development
IDENTIFIERS	*Hawaii University

ABSTRACT

The Academic Development Plan II of the University of Hawaii is designed to guide the operations of the University through the academic and fiscal year of 1974-1975. It commences with background information and a brief historical look at the university. In Part I the University at large is discussed. This includes the problems of (1) centralized admission, (2) centralization or decentralization in planning, (3) projected increase of enrollments, (4) increased need for physical facilities, and (5) curriculum changes, with a view toward more sensitivity to social issues. The chapter recommends important modifications in the University's policy concerning its commitment to public service. Part 2 discusses the development plan for reach of the 23 constituent units of the University system. It includes purposes and objectives, the instructional program, student advising, services to other colleges and to the community, administration, the undergraduate curriculum and instruction, and the graduate curricula and research. Part 3 discusses the fiscal and economic aspects of the Plan. Part 4 contains projections for 1975-76 for the University System, the Manoa Campus and other constituent units. Part 5 is comprised of seven tables and an index. (AF)

ED038921

Academic Development Plan II
for the University of Hawaii / March 1969

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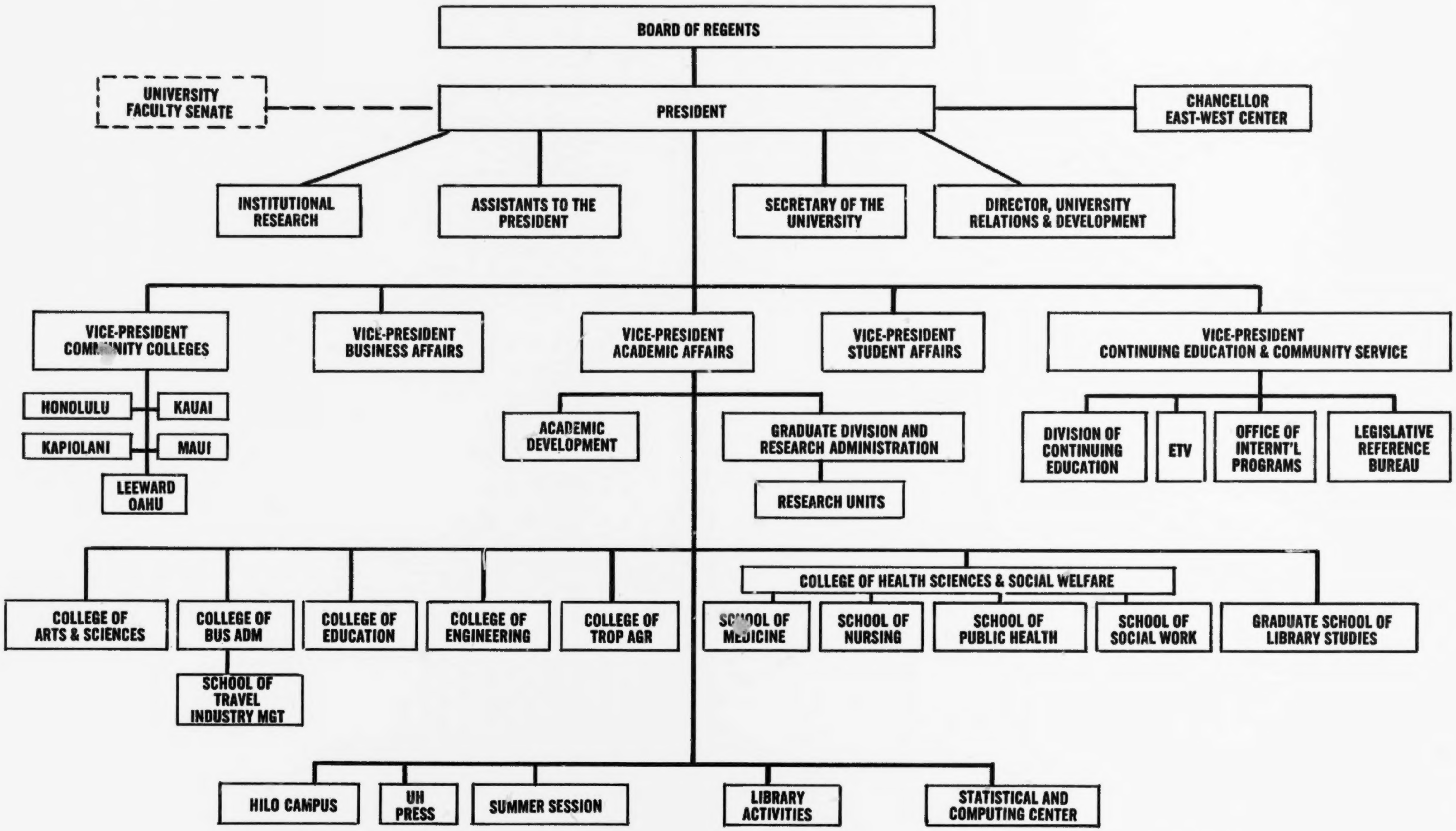
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FOREWORD

THE PROCESS by which this plan for the development of the University of Hawaii was prepared was rather remarkable. It involved more than two hundred faculty members and scores of students and administrators; it required more than a year of sustained work, first by the committees of the several colleges, schools and other units of the University, then by the Academic Development Plan Committee, by review committees of the Faculty Senate and of the Associated Students of the University, before going to the Board of Regents. Along the way, there were nine public hearings on the plan, which went through three drafts before it was adopted. To my knowledge, few other large American universities have so energetically engaged their campus communities in the setting of academic goals and stating the means of attaining them.

So well has this process worked that many of the suggestions for improvement generated in the drafting of this Academic Development Plan have already been carried out, or are in process of being implemented. Accomplishment of the more distant and ambitious objectives established in the document, however, will require the same degree of moral and financial support from the state government as the University enjoyed over the past five years while operating under its first development plan—a sustenance which I am confident the University will continue to merit.

The long round of discussions during which the plan was hammered out revealed, to no one's surprise I should think, that a large and diverse faculty and student body held diverse views on the proper scope and purposes of a university. One axis of polarity concerns the relationship of the university to the larger community. Some on the campus hold that the university exists primarily to discover knowledge and transmit it to succeeding generations of students, and that it should not compromise the fulfillment of this function by seeking other engagements with the world "outside." In place of this ivory-tower model, others would substitute the model of the social-service university, one that undertakes to apply its expertness to the problems of contemporary society and to bring those problems into the classroom. Some are critical of what they see as an overemphasis on vocational preparation in the curriculum, but others are impatient with the amount of general education required of undergraduates.

This Academic Development Plan, wisely in my opinion, does not accept any either-or position on these issues or others which divide opinion concerning the proper roles of the university. Charles Hitch, President of the University of California, pointed out in a speech which he made a short time ago in Honolulu to the National Conference of State Legislative Leaders that universities are in part conservative of values as well as knowledge, and in part anti-conservative as they discover new knowledge and critically examine prevalent attitudes. The mixture is disquieting to those who passionately believe in either conserving the old or displacing it with the new. Dr. Hitch made a plea for the support of the university within the general populace which also may be directed to the faculty and students of a multiversity:

"As a university president I am asking for that rare condition which legislators resort to only when partisan conflict threatens to harm an indispensable institution—bipartisan support.

"I am asking that liberals and conservatives alike recognize the uses of the university which serve their particular philosophies, instead of attacking those functions which challenge their position.

"If conservatives condemn universities for their progressivism and liberals condemn universities for their conservatism, there is no doubt what will happen.

"A university is an integrated whole and can't be dismembered to suit popular opinion or partisan positions."

As the many persons who participated in drafting this plan re-discovered, a large university is not a homogeneous institution of like-minded people, but rather a complex of programs which share some traditions—notably the use of reason to illuminate and solve problems—and the facilities of a campus. The university contains, and has good use for, scholars somewhat removed from the workaday world, practitioners of arts and skills of prime importance to the production lines and marketplaces of the economy; innovators and conservers; researchers, technicians, systems analysts and poets; those who read Fortran and those who read Sanskrit. A university which is large and wants to be excellent must count on having a widely heterogeneous faculty, who in turn help attract a student body of varied interests and abilities. As long as each group within the University's community continues to act with mutual respect, the result of the mix is to stimulate the campus and not divide it.

This Plan, in my opinion, judiciously balances innovation with continuity of program. There is a spotlight on change, but that is because change requires particular effort, while established programs are carried forward by their momentum without need of advocacy. Thus a theme stated again and again in Development Plan II is that the University should be more actively involved in seeking solutions or amelioration of problems of the larger community about it, wherever the expertise of the facutly can be so applied. The undertaking of this function by the University is not new—it is taken for granted by the professional schools—nor does it signify a radical shift in the University's programs. Rather, it represents a change at the margin: as the University continues to grow, it will particularly add to the community service that it performs. Researchers who work in their laboratories and teachers who concentrate on their classrooms will not be valued the less because of this additional emphasis in the University's program; rather, more equal recognition and support will be given to faculty who make professional contributions to the community, state and nation.

Also woven into the broad fabric of this Plan is a concern for evaluating the programs of the University, and particularly the innovations proposed. The difficulty of applying quantitative analysis to the inputs and especially the outputs of an educational institution is recognized, but so is the importance of applying the ingenuity of the University's faculty and staff to the task, so that rational judgments can be made concerning the retention or change of on-going programs, and in deciding to accept or reject proposals for new activity. The capability of the University for self-appraisal must be strengthened greatly to make this evaluation possible.

Academic Development Plan II marks a significant milestone in the history of the University of Hawaii. While it is mostly concerned with the development of the Manoa Campus, this Plan describes and encompasses—for the first time in a major document of this institution—a statewide system of higher education. Given the happily small size of this state, its tradition of centralized government, and the easy movement of people and resources from one island of the state to another, it is feasible to plan a comprehensive university which includes a number of campuses with a wide variety of academic programs, from community colleges to graduate professional schools, under one general management—each campus free to devise its own curricula according to its circumstances and needs, yet with enough compatibility so that students can readily transfer from one campus to another, or even, as this Plan proposes, simultaneously take different parts of their program on two campuses. The advantages of a unified system of higher education can be fully appreciated only by those who have closely observed the difficulties of a state where two or three publicly supported systems compete for resources and laboriously devise regulations governing their mutual relations in an atmosphere of invidious comparison.

Two things remain to be said. One is to note that this Plan was begun during the remarkably enlivening administration of Thomas H. Hamilton and completed during my tenure as acting president. The fact that the planning went on without interruption, with the widespread faculty, student and administrative participation which has so impressed me, is evidence that a university is a living, growing thing which cannot suspend its development for a protracted period, even when changing its administrative leadership. Academic planning under these circumstances is perfectly feasible, since in most respects the plans are sufficiently general and sufficiently open-ended to give scope to changing leadership as well as to a changing faculty and changing student body. As the document itself says, this is a "strong guide, but not a route map." What is as certain as any other proposition made in the pages which follow is that the next seven years will bring many developments in the academic programs of the University of Hawaii not now planned for, as this institution responds to conditions, needs and opportunities not foreseeable today.

And finally—not merely because protocol requires it but because they have merited it—I want to extend the appreciation of the University to the college, divisional and Faculty Senate committees which have worked so well in providing the basic inputs for this plan, and to the Academic Plan Committee which brought the document into being as an organic whole. Mahalo nui loa.

Robert W. Hiatt
Acting President
January 23, 1969

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INTRODUCTION

Five years ago the University of Hawaii prepared and adopted its first comprehensive Academic Development Plan. The Plan attempted to lay down general guidelines for the orderly growth and improvement of the University's educational programs over the period of a decade, from the mid-1960's to the middle '70's. Specific recommendations for improvements of central importance to the University, such as an accelerated expansion of the library and the provision of more adequate academic advising, were advanced. Basic data on student population, staffing, space needs and cost projections were gathered and analyzed.

During the past five years most of the recommendations incorporated in the Academic Development Plan of 1963-64, approximately one hundred, have been carried out or are being implemented. A few major proposals, on reconsideration, proved unfeasible or of low priority, such as the recommendation to establish a liberal arts degree in the University's extension division, or failed to receive financial support—notably the recommendation that sufficient residence halls be constructed to accommodate at least half of the unmarried students living away from home.

However, negative responses were remarkably few. Indeed, so many of the recommendations put forth only five years ago have been implemented that the University has already outgrown Plan I. New goals must now be set, goals which take into account the qualitative as well as quantitative aspects of growth. The task was easier in 1963, when it was reasonable to equate growth with improvement, than it is now when the major campus approaches its saturation point and when the choosing among alternative candidates for expansion becomes more critical.

Even more forcefully, the rapid growth of the State of Hawaii and of its public university has limited the effective life of the 1963-64 Plan and now requires its replacement with a new one. In five years the population of this state has increased by a fifth, and the numbers of those of college age living in Hawaii rose by approximately a fourth. Such rapid growth of the student body had been anticipated, but what was not yet clear five years ago was the necessity of deciding how large the Manoa Campus could be allowed to become before problems of crowding threatened the quality of the educational experience.

The idea of establishing community colleges within the University of Hawaii was just being considered when the Academic Development Plan was drafted and adopted. The concept of a University system, incorporating the Manoa and Hilo campuses, a second major campus and a network of community colleges, was just taking form five years ago. Consequently, it was necessary to prepare supplements to the Plan, in 1965 and 1967, to take these new factors into account, and also to direct further attention to programs which had been treated only tentatively in 1964.

The original Academic Development Plan is thus largely outmoded and needs replacement. This is not to say that its general approach or format should be set aside. On the contrary, the diverse audience to which the earlier document was presented—faculty, administrators, Regents, legislators, Governor, budget directors and examiners, interested members of the public, and federal agencies and national foundations concerned with higher education (one now adds students of the University)—seem to have found the Plan relatively clear and reasonably persuasive, hitting a ground between generality and fine detail which was appropriate for its purpose.

Encouraged by the past reception, this second Plan follows the general contours of the first: it focuses on the larger programs, at the level of the college or school within the University; it discusses particular curricula or research or service programs only when a new departure is proposed, or when the detail illustrates a wider issue; it considers the new community colleges only as their programs impinge on those of the Manoa and Hilo campuses; it relates the development of the University to the growth of Hawaii.

Like the first Plan, this one is open-ended; it does not pretend to identify all the changes which in the near future should be introduced by the University. It recognizes that to serve this state and nation well, the University must be able to accommodate its programs to changes in demands and opportunities for service. The Academic Development Plan should be a strong guide, but not a route map. For example, it is indeed a broad policy of the University to encourage research in areas in which Hawaii has some inherent advantages, because of climate, physical and social resources, etc But this general criterion should not be invoked automatically and uncritically in a way which would impede significant research in any discipline which happened to fall outside the areas of our natural advantage. Any field of study considered worthy of being included in the instructional program must certainly be supported in a manner which will enable its faculty to conduct research.

Adoption of this Plan primarily signifies endorsement of its recommendations at the present period. At any future time changing conditions may generate proposals to change some of the priorities for development. If the Plan serves its broad purpose, it should be possible to apply the general guidelines to each new proposal in reaching a judgment as to its desirability.

A change in emphasis between Academic Development Plan I (1964) and Plan II (1969), one of potential significance, is a greater attention to stating the purposes, the goals, the objectives of each major program carried out by the University. This emphasis comes in response to an interest—on this campus, within the state government and nationally—in attempting to appraise the effectiveness of education programs. No one has yet devised in theory a feasible measure of productivity in higher education, let alone succeeded in applying it, and many are skeptical that quantitative appraisals are relevant to the central programs of a university, which are the teaching and advancement of knowledge, the broadening and deepening of understanding.

However, an institution as peculiarly devoted to rational analysis and as constitutionally opposed to obscurantism as is a university, must make a strong effort to test the efficacy of program budgeting, systems analysis, or other forms of the newer budget calculus as applied to higher education. The effort made in this Plan is to state the objectives of its several programs as clearly as possible, so that the relation of means and ends becomes more apparent. This is the first essential step toward a more objective means of determining the optimum allocation of funds appropriated to the University.

The time horizon of Plan II remains the same as for Plan I—to the academic and fiscal year 1975-76. Given the rapidity of change, and the uncertainties (notably in the prospects for federal financing of educational programs) which abound in even the near future, seven years into the future is about as far as it is sensible to plan at even this level of specificity. Before 1975, the University will have to be building a second major campus, one capable of accommodating tens of thousands of students in a variety of programs. By that time at least one more Academic Development Plan will be needed.

This document has little to say about University salaries and physical facilities, not because adequacy in both respects is unimportant—on the contrary, they are essential to achieving the goals set forth by this Academic Development Plan—but because other statements will set forth with greater detail and authority the financial requirements of the University for salaries and buildings. The latter documents, such as the annual or biennial budget requests, five-year budget projections and campus development programs of the University, will primarily look to this Academic Development Plan for objectives and guidelines.

It should be made clear, however, that the University of Hawaii functions—must function—in an academic community which is nationwide and increasingly international. If the University is to continue to strive for excellence it must maintain strong ties with the academic community as well as with the community of this state and ocean area. While the faculty member's commitments and loyalties are primarily to the University of Hawaii, his professional attainment and reputation are largely developed through relationships with his professional colleagues at other institutions. This creates a greater degree of mobility than is found in most other professions.

Faculty mobility is a circumstance, common to all American universities, to which Hawaii must accommodate if it is to keep in the mainstream of higher education and scholarship. Such mobility connects this university to the national academic "market," where hundreds of institutions now compete to attract and retain faculty members of high competence. It is this national competition, rather than local circumstances, which sets the standards for salaries and working conditions which the University of Hawaii must meet if it is to improve or even maintain its position in American higher education and thus fulfill its responsibilities to the State of Hawaii.

A GLANCE AT THE PAST

The Introduction has stated that the rapid growth of the University between 1963 and 1968 enabled it to carry out most of the specific recommendations of the first Academic Development Plan, making the 1964 report outmoded as a guide for particular programs. It is not so with respect to certain enduring functions of the University, including the spread of knowledge through instruction and research and their extension to the broader community through relevant public service. These threefold activities of the University may be said to represent a dynamic of institutional stability. They jointly serve as a kind of countervailing power, a balance that provides coherence and organization, in response to the multiple play of external forces upon the University resulting in constant adaptation and change.

To project clearly the future of the new University of Hawaii system in a period of rapid change requires perspective, some notion of past policies, the political and social events they sprang from, and the physical and human environment in which present policies were evolved and developed. Consequently, the Introduction to Plan I is here reproduced, without essential alteration except in one major respect. Plan II recommends important modifications in the University's policy concerning the public service commitment of the institution. This revision and its justification are spelled out in the later chapter headed "The University's Response to Change."

THE UNIVERSITY IN HISTORICAL PERSPECTIVE

To bring leadership to the task of meeting the educational needs of people is an essential purpose of all universities. The University of Hawaii is committed to this goal. No man, no community, no educational institution wants to stand still. Just as a living community cannot be static, so the life of a university must move forward and always look ahead. One of the first aims of the University of Hawaii therefore is to provide an insightful sense of direction to the people of the state as they strive to perceive their important needs.

The University of Hawaii is in part the product of that tradition which took form in the United States a century ago with the Morrill Land Grant Act. In 1907, not so very many years after Hawaii ceased to be an independent monarchy, the territorial legislature of that time established on Oahu, under the amended provisions of the Morrill Act, a "College of Agriculture and Mechanic Arts." In 1920 a later legislature gave the young institution a new design, a new policy and a new name. The modest college begun in the stony pastures and small truck gardens of lower Manoa Valley was officially transformed, by legislative act and the will of the people, to serve as Hawaii's university. Thus, between 1907 and 1920, the University of Hawaii sought out and managed to find its identity in its earliest land-grant aspect as a "college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts . . . in order to promote liberal and practical education of the industrial classes in the several pursuits and professions in life."

Such a generous goal for education beyond high school was in its day a revolutionary innovation. It represented an ideal of higher educational opportunity for the many rather than for an economically favored few. Such a new definition of the role of the university in society also meant a broadening, a reaching out, to embrace in a single institution a comprehensive range of academic experience. In its full span, not always successfully achieved, the new type of available education might extend from the encouragement of creative minds in the realms of truth and beauty to the training of effective technicians and professional practitioners. Since 1920, broadly considered, this is the tradition to which the University of Hawaii has given allegiance. It remains today the tradition in which the University has dedicated itself to the task of seeking new levels of educational quality, new standards of academic achievement that surpass unassuming competence.

The University of Hawaii has profited from the flexible educational philosophy which allowed the original land-grant college concept to merge with the enduring Western tradition of higher learning. The act of the territorial legislature in 1920, when it established the *University* of Hawaii, was in full accord with educational progress on the American mainland since at least 1890. The original land-grant act had not been intended to emphasize the non-professional areas of scholarship—learning, as we say, "for its own sake." Quite the contrary. In order to insure the broadly based and balanced curriculum of the University, and to safeguard the non-professional areas of scholarship, the charter which the legislature gave the University of Hawaii directed those responsible for the fortunes of the college in Manoa Valley to "lay the foundation for a larger range of collegiate work in Hawaii by establishing a university . . . sufficiently inclusive to provide for all future needs."

Much has been accomplished during the past 40 years to carry out the farseeing intentions of that bygone legislature. Far more remains to be accomplished, however, and at a time in history of much greater urgency for the world at large, as well as for the Fiftieth State, than most people would have ventured to predict in 1907 or 1920. In any event, the University of Hawaii received from the lawmakers and the people a mandate which today it continues to serve. Within the framework of this mandate the University is the single state institution in Hawaii obligated to cover all the major phases of academic endeavor.

These main functions fall into three distinct but plainly interrelated categories: teaching, research and public service. In each of these phases, the University is responsible for extending its opportunities to all who may be capable and who possess the desire and diligence to benefit from the University's services or participate in its programs. "Further than this," as former President Morrill of the University of Minnesota has said, "each [land-grant university] has recognized that knowledge transcends both state and national boundaries, and that a state university dedicated only to the narrow needs of its own state would prove too limited in its vision to meet even these needs adequately. The modern state university serves its own state best through its work in the wider world of science and scholarship with students, teachers, and researchers from every state and nation."

As a teacher, the University has a task of many facets and of rapidly changing techniques and implications. Its programs in the undergraduate liberal arts and sciences have developed both in breadth and depth, particularly since the end of World War II. Since about 1950, and more markedly since 1955-1960, the expansion in certain professional and graduate areas has moved the University into a new era of growth and potential eminence—in special fields of concentration—among major American universities. The causes for this acceleration are complex, partly connected with population factors, partly related to Hawaii's achievement of statehood, no doubt. The causes are also related, both directly and indirectly, to the social and political struggles of our period.

Perhaps here we should note that the University's programs are available at a modest cost to all who are capable of collegiate work. In addition to the graduates from the high schools of Hawaii who make up the University's student body, a sizable and increasing proportion of its students are products of mainland high schools or transfers from mainland colleges. This marked trend is inevitable. It is also highly beneficial: to the students of local origin, to the *malihini* newcomers, to the faculty, and to the state as a whole—in short, to all concerned in this refreshing transaction which links Hawaii more closely than ever before with the academic expectations and habits of the United States mainland.

By means of the research it carries out, a modern university is called upon not only to communicate knowledge but also to increase it; and not only to increase it in sheer volume and weight, but to refine it, to interpret it, to understand its human value and relevance. Original investigative work in the sciences, joined with creative activity and scholarship in the arts and humanities, produces results of the greatest interest and worth in their own right. And this is not all. The findings of the researcher and the fresh insights of the teacher-scholar also bring an urgent stimulation and vitality to the classroom. At the graduate level, where the University is engaged in the demanding and indispensable disciplines that make up the training of researchers, scholars, teachers, professional leaders of all kinds, an atmosphere of intellectual vigor and independence is one of the essentials of an outstanding university. This spirit of critical independence thrives well when it is joined with a spirit of competition and cooperation with other fellow-researchers following up new avenues of discovery.

Now it is true that there are limits to what any university can become, and it is not surprising that the University of Hawaii is no exception. However, in its graduate programs and as a research center in certain areas of study, there is reason to believe that the University of Hawaii can be a university of distinction and some uniqueness. It can become such if it selects its areas of emphasis with care.

This Development Plan rests on the conception that the future of the University of Hawaii will depend on how well it succeeds during the next several years in fulfilling its mission as already defined in its record and in the context of its distinctive geographical and cultural setting. The question of the University's future role, both in relation to Hawaii and to the world, is not essentially different from the question facing other universities in other regions, wherever men strive to develop the human and non-human resources that make up their communities. Although the fundamental problem is the same, the answer of the University must be its own, reflecting Hawaii's special advantages and taking account of its limitations.

Several criteria of selectivity stand out as guides, if the University given proper encouragement is to fulfill itself and achieve the distinction it seeks and the people of the state desire. The University's *geographical location* has already led to concentration in tropical agriculture, oceanography, and marine biology. The *physical environment* has focused interest on natural phenomena in geophysics such as tsunami research, volcanology and the like. But potentially the *multicultural composition of Hawaii and the multicultural idea* as such may prove the most useful and encompassing criterion. To be face to face with diverse cultural systems and attitudes stimulates the desire to investigate, to analyze, to compare, to appraise: to try to comprehend, above all, the concept of culture itself as a symbolic system of values greater than this or that historic art or science or technology, a concept that finally transcends man's natural attempt simply to adapt to his environment in the sense of manipulating or "exploiting" it.

Since the establishment of the University of Hawaii, the many cultures present in the local population together with Hawaii's proximity to and interest in Asia and the Pacific Basin have had a profound and invigorating effect. Certainly in no other part of the United States is there a comparable community-wide understanding that the state university has an explicit responsibility not only to the state and nation but to a geographical-cultural region of the world as well. One effect of that consensus in Hawaii is seen in the University's remarkable range of offerings in the languages of Asia and the Pacific—Cambodian, Chinese, Hawaiian, Hindi, Indonesian, Japanese, Javanese, Korean, Pali, Sanskrit, Tagalog, Thai, Urdu, Vietnamese and others.

But the multi-cultural program as modified by geography extends beyond the area of linguistics and the symbol-systems that constitute language. There is hardly a department in which the cultural factor, combined sometimes with an interdisciplinary approach, has not left somewhere its mark. Course offerings include such items as field archaeology in Oceania, art of Asia Minor, India, and Southeast Asia, several courses dealing with the civilizations of the East, music of Asia, Oriental drama and theatre, a large number of courses concerned with Oriental philosophy, economic development of East Asia, geography of the Pacific islands—and these are only a few examples of the Pacific-Asian component of the curriculum. The full list would be lengthy indeed.

If the "idea of a university" is related to the Latin *universitas,* meaning all together, comprehensive, the universe, it is evident that the University of Hawaii in its pioneer effort to achieve a curriculum drawing from both the Western and Eastern cultural traditions has given more than lip service to the conception that a genuine university takes knowledge of all the world as its domain.

This feature of universalism in the curricular landscape of the University of Hawaii does not mean the University seeks to teach anything and everything. What it does mean is that the University encourages wherever it is appropriate cross-cultural study and interdisciplinary collaboration on various levels—in short, a bridging perspective—in the fields to which Hawaii's physical and ethnic setting in its larger scope gives a special scholarly interest and relevance. Thus the presence in the Hawaiian Islands of several racial groups was in part responsible for the establishment of the Pacific Biomedical Research Center, in which considerable emphasis is given to human genetics. The College of Tropical Agriculture's program concerns itself with the food problems, the interrelated agriculture and economics and ecology, of tropical peoples. In the realm of ceremonial arts and civic entertainment the climate of Hawaii in the fullest sense of the word has always been conducive to the enjoyment of beauty, in woman, in man, in children, in nature, and to the graces that make life worth living. Within the next decade Hawaii's activities in the arts may be expected to gather momentum, range of tradition and symbolic appeal, and a more valid cosmopolitanism—with a richer international bearing than ever before—especially in music, painting, theatre and dance, and the performing arts in particular.

Surely the necessary principle of selective emphasis need not, under sound guidance and appropriate public support, result in the sacrifice of balance and the necessary sense of proportion among established programs. At least since 1920 the University of Hawaii has acknowledged the need for solid competence in all *fundamental* fields of knowledge. It is reasonable to affirm almost 50 years later a policy insuring community leadership in all the basic fields, working toward distinction in each, and assuming within the immediate future a role of positive eminence in a select number of areas.

Beyond the realms of regular resident teaching and research, the University has a special, significant and ever widening obligation to public service of many kinds. Historically, this phase of the University's function is part of its land-grant foundation, but the demands in Hawaii for making the services of the University more widely available will greatly increase. In Hawaii as on the mainland our society is becoming more knowledgeable about its educational needs and its deeper cultural aspirations. Thus the demand will mount for a great variety of adult educational institutes and conferences, for professional refresher courses, and, in short, for all the general services of continuing education.

The full concept of continuing education implies, however, not only the ongoing education of the individual but the larger life and the enduring civilization of which the individual is partly the product, and also partly the cause. "Men are not mere depositories and channels of transmission, because of the nature of that which is transmitted," writes the American philosopher Ralph Barton Perry. Perry goes on to remind us that, although the tools and artifacts found in geological deposits have endured when the users have perished, education as inheritance—and as the total environment which man inherits—refers precisely to that which, in the physical sense, is least durable. We live by virtue of symbols, of ideas, sentiments and habits whose vehicles are highly perishable.

Margaret Mead, the anthropologist, speaks of the sense of the unknown frontier, of the unforeseen tests of life, as one of the central themes in far-western American experience. In Hawaii, where American life is in many ways akin to the life of the Far East and to Polynesia, we live today among several such merging frontiers.

> We must concentrate upon teaching our children to walk so steadily that we need not hew too straight and narrow paths for them but can trust them to make new paths through difficulties we never encountered to a future of which we have no inkling today.

Part I: THE UNIVERSITY AT LARGE

Chapter 1: THE UNIVERSITY SYSTEM

By authorizing the establishment of community colleges in 1965 and placing them under the Board of Regents and President of the University of Hawaii, the Hawaii Legislature created an arrangement unique in the United States—a system of higher education which encompasses all public institutions of higher learning in the state, including vocational as well as academic curricula. The system is in an early stage of development; the integration of its constituent parts, each growing rapidly, is one of the major tasks of the next several years.

The physical components of the system include the central campus in Manoa (daytime enrollment of some 17,000 in 1968), the Hilo Campus (two-year program, enrolling approximately 700), and five community colleges (three on Oahu, one on Maui, one on Kauai, with an aggregate enrollment of about 5,500). A second major campus, discussed in the following chapter, is now being planned to help accommodate a student enrollment now rapidly filling the Manoa Campus.

Placement of all public higher education under one management makes it possible to offer students broad opportunities for education beyond the high school, and of the best quality which the legislature judges that the state can afford. Students who attend the new comprehensive community colleges can, with guidance, select either vocational training explicitly directed to job preparation, or college courses applicable to a bachelor's degree. Students at Manoa will be able to take at a community college technical courses for which they are qualified and, reciprocally, community college students will be able to take at Manoa academic courses for which they are qualified, if these courses are not offered at their own college.

The goal of achieving excellence in selective areas, the basic tenet of the University's overall development, applies equally to the community colleges. Each college will teach a limited range of vocational subjects and will try to teach them uncommonly well. As they succeed, the community colleges will help cure a prejudice as prevalent in Hawaii as in other parts of this nation—the view that education capped by a baccalaureate degree, however mediocre, is preferable to learning a trade, however well.

The community colleges, with relatively small faculties, also must be selective in their curricula for the first two years of a baccalaureate program. Further, they must be capable of educating some of their students from a point, at entrance, where they do not yet meet the academic criteria of the Manoa Campus, to the point, at transfer, where they do. Some aspects of this difficult responsibility are discussed below in the section on community colleges.

Currently, the scope of the Hilo Campus is limited to the first two years of college transfer work. The chapter on the Hilo Campus presents a plan for developing this curriculum into an arts and sciences baccalaureate program, organized around general education and selected multidisciplinary concentrations.

Within the University system, each constituent unit is authorized and encouraged to create its own curriculum, based on its own facilities, interests and needs. Courses at Hilo and the community colleges need not be copies of those offered at Manoa. A common course numbering system is all that formally interrelates the courses offered on the several campuses. However, the fact that many of their students intend to complete baccalaureate programs at Manoa inevitably influences the other campuses and requires them to concentrate on courses in the general education core, which presently dominates the first two years of study. As the choices within the core are expanded, these constraints will increasingly relax, giving the smaller campuses larger scope for curricular individualization.

The faculties of each component of the University system are also distinct; each faculty member with tenure holds it at one campus or another and not in the University at large. However, this does not preclude faculty interchange among campuses. Already, a few Hilo faculty members teach in the summer session at Moana, and occasionally people from Manoa go to Hilo for a term or for an assignment in a continuing education course. Such interchange is encouraged by the University as an important means of tying together the constituent campuses of the University system. As the community colleges and the Hilo Campus grow, and as a second major campus is constructed and staffed, it is contemplated that faculty transfer and visitation throughout the system will become increasingly frequent and will be supported by interisland travel funds within the University budget.

Centralized Admission

This, an academic plan, does not address itself to administrative arrangements, except as they affect the academic program in some direct way. One such area is the admission of students within the University system.

At present, each constituent of the system has its own admission policies and procedures. Individual policies are necessary to carry out the separate, if interrelated, programs of each campus. However, it is a nuisance to require a student who is uncertain as to which Hawaii campus will admit him to apply separately to each, and it is also inefficient for one campus to accept him, not knowing that another in the same system has already done so. Therefore, the University will use a common admissions form on which the student indicates his first, second and third choices of campus. If he is not accepted by the first, or changes his mind, the application goes to the second . . . and third, if necessary. Each campus will apply its own criteria for admission. Standards of academic accomplishment, however, will be as uniform as can be throughout the University system, a policy discussed at greater length below in the chapter dealing with the community colleges.

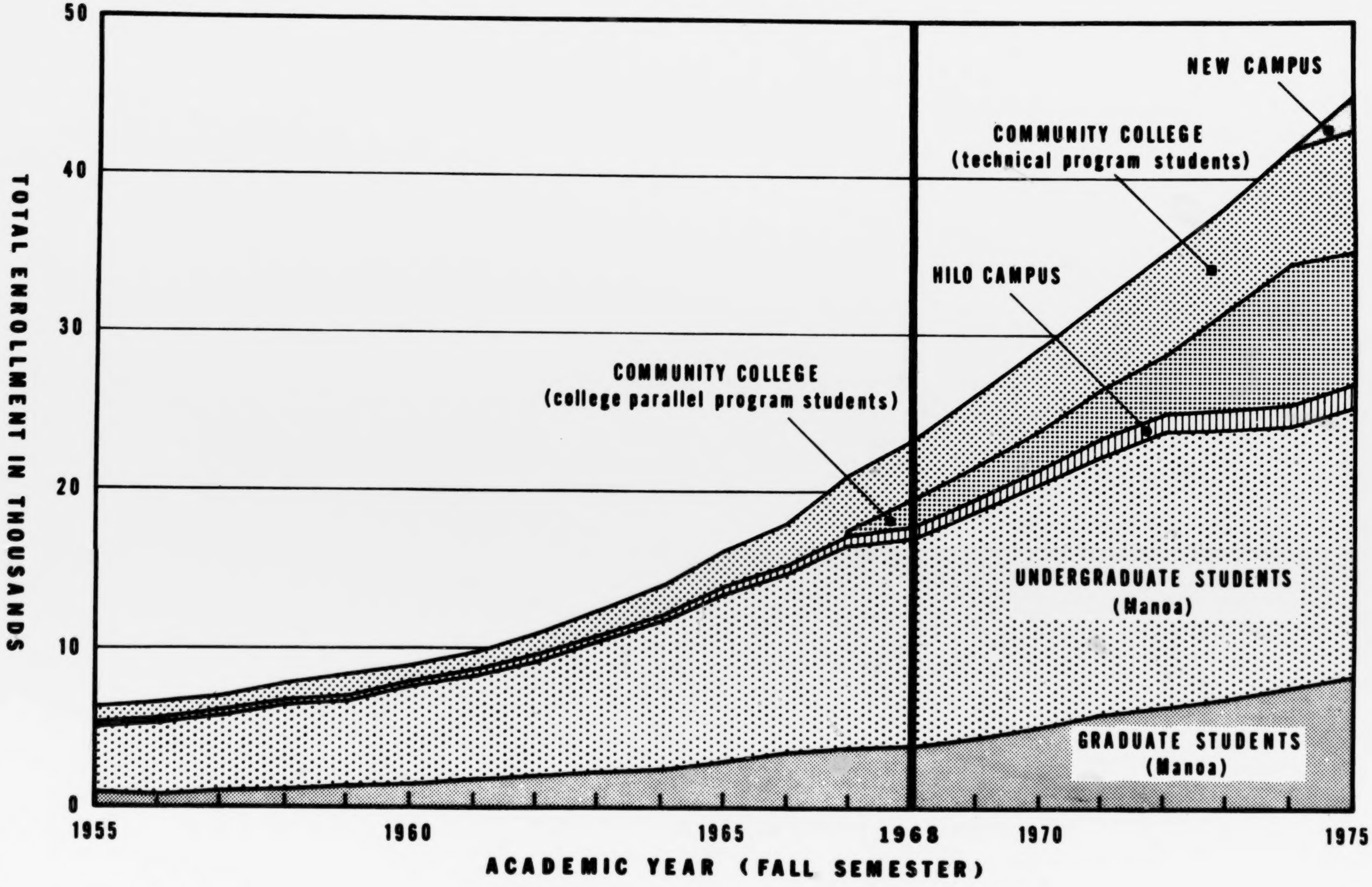
Centralization and Decentralization in Planning

The structure and institutional arrangements of the University of Hawaii, now relatively simple, will be modified as it continues to grow into a comprehensive statewide system of higher education. The system will not be large, compared with the colossi of California or New York, but it will be big enough to require the most thoughtful planning and implementation if it is to succeed in giving to the separate campuses the scope necessary for their individual development, while retaining the coordination essential to a statewide system of public higher education.

Coherence of collegiate programs within the state requires that the Board of Regents, central administration and University Faculty Senate retain ultimate authority over the broad educational goals of the University, the general division of labor among the several campuses and colleges in attaining these goals, and the academic standards and qualifications represented in such achievement. Responsibility for planning the detailed curricula and programs of each campus, however, lies with the faculty and administration of that campus, aided by the advice of its students. A continuous appraisal of students' academic achievement, utilizing analytical data and conclusions compiled within the central administration, will help provide criteria and guidelines for evaluating the success of each campus in carrying out its functions as a member of the system.

FIGURE 1

Student Enrollment, Actual and Projected
University of Hawaii System
1955-1975



Chapter 2: THE 25,000 STUDENT CAMPUS, AND BEYOND

The chief campus of the University is rather small in area, as state universities go, having only approximately 300 acres in Manoa Valley. Facilities around Oahu, owned or leased, add to this space, but they are used for special functions, such as agricultural and oceanographic laboratories, and are not available for classrooms or other general needs of the University. When the first Academic Development Plan was written in 1963, it was apparent that this acreage was rapidly being saturated and that at some time in the future it would be necessary to limit the natural growth of the campus, but the imminence of that time was not yet obvious.

The emergency became obvious in 1965, when the increase in student enrollment at Manoa began to exceed significantly the projections of Academic Development Plan I. New projections, more fully taking into account the larger civilian population of the state as well as the increasing propensity of young people of Hawaii to attend college here instead of going to the mainland, showed that by 1975-76, the last year of the plan period, there would probably be an enrollment of 27,000 to 30,000 at Manoa—instead of about 23,000 as projected earlier—if growth were unrestricted and if that many could be jammed into 300 acres.

At this point the University began more urgently to consider the alternatives: (1) to acquire additional acreage in Manoa; (2) to build a high-rise campus; (3) to limit total enrollment to what could be accommodated in the projected building space, avoiding high-rises; (4) to create a second major campus.

A small amount of additional land near the campus became available and was purchased, but opportunities of acquiring space in a valley as densely populated as Manoa are as limited as the square footage is expensive. The possibility of a high-rise campus with a student population potentially approaching 40,000 or 50,000 was considered and rejected for many reasons, some logistical and economic, some esthetic, but above all because, in the judgment of the many people who considered the problem, a huge and crowded campus would be inimical to the humane qualities which a university is intended to nurture.

The Academic Development Plan Committee in 1965 proposed that a ceiling of 25,000 students (implying a total campus population approaching 30,000) be established. That total would be comprised of approximately 8,000 graduate students and 17,000 undergraduates. As a matter of educational policy, it was recommended that the Manoa Campus retain the entire span of university instruction from freshman year to post-doctoral work. The Faculty Senate, Council of Deans, the President and the Board of Regents accepted the policies involved in setting a 25,000 maximum, along with the proposal that planning be started on a second major campus. It did not require much argumentation to show that the University, as the sole public institution of higher learning in the state, had an obligation to expand its facilities to accommodate the educational demands of the state's populace and could not summarily impose a limit on enrollment in the University system.

Given this 25,000 ceiling, the University next worked out a long-range plan for developing the Manoa Campus, one which would make effective use of its limited acreage without erecting a concrete screen between the magnificent green mountains which enclose Manoa Valley and the blue ocean still visible beyond Waikiki.

Consultants of national prominence were called in to verify the wisdom of the basic decisions: to stop at 25,000; to create a second major campus. They concurred, recommending that the next major campus be located on Oahu, where about four-fifths of the state's inhabitants live, and where the cultural, scientific, recreational and commercial activities that sustain the life of a large campus are concentrated.

The basic educational goals and dimensions of the second Oahu campus are now being formulated by the University. The urgency of moving ahead toward the construction of that campus increases with the steadily upward slope of the student enrollment curve, traced in Figure 1. Within about six or seven years the number of students at Manoa will reach 25,000—conceivably even earlier if there is a large influx of students on new GI benefit programs or if transfers from the community colleges are more numerous than now expected. Five years is the minimum required to construct, equip and make ready a new campus. Decisions, enabling appropriations and basic planning, are needed in 1969 if a crisis of overcrowding, or of refusing admission to qualified students, is to be averted six years hence.

Chapter 3: THE CRITICAL PROBLEM: QUALITY AND QUANTITY

In 1964 the first Academic Development Plan noted that the University of Hawaii was confronted with the task of virtually doubling its physical capacities within the next decade. It was further shown that the quantitative problem facing the University—how to find sufficient faculty, land, classroom space, libraries, labs, dormitories—formed only one phase of an emerging educational crisis. Simply to supply quantity, more training to ever-growing numbers of young people, was by itself no adequate answer to the critical need. The ultimate task, and the only solution of the problem of quality, demanded better education for far more complex purposes.

Plan I listed a few of the causes that account for the accelerated growth in American educational institutions and for the increasingly complicated network of a modern university's programs and services. These underlying pressures and circumstances, evident in Hawaii as on the mainland, include: (1) the increase in population and its effect on school enrollments; (2) the impact of urbanization and industrial society on traditionally stabilizing institutions, such as the family; (3) the proliferation of new areas of knowledge and revolutionary scientific discoveries; (4) the consequences, beneficial and vital to existence in many respects, but socially costly in others, of contemporary technology and the expanding uses of automation.

It is surely obvious that drastic changes at work everywhere in the physical and social environment caused by the floodtide of new knowledge, together with the bewildering speed of these changes, can never be accommodated or controlled by closing down the floodgates of knowledge. Urgent problems of land use, housing, water shortage, waste disposal, air and water pollution, transportation and public services of all kinds—including provision for a strong educational system—can only be solved by the application of human intelligence, guided by a more fully awakened social conscience. One of the most immediate problems in Hawaii is the social implication of technological change and the policies and measures needed to adapt advanced technology to the life of the state and for the benefit of the community.

Plan I went on to note, without laboring the point, that technological training and professional know-how alone are no adequate answer to society's need for specialists with a "vocation," individuals whose dedication and "power drives them to find their own ways of working from incentives internal to themselves."*

> The extension and application of knowledge has become a necessary condition of human welfare and the preservation of human dignity and freedom in the 20th century. We must identify our more able people when they are young, develop their abilities, provide employment and scope and challenge for their varying capacities and talents. While they are students of the University of Hawaii they must achieve, in addition to their specialties, a mastery of values and aims that give meaning, direction and belief to their world.†

Plan II places a somewhat greater emphasis on the latter aspects—values and aims—reflecting the growing concern of the University that the education it offers, including the various professional programs, helps its graduates attain both professional competence and a sensitivity to the social effects of their work. The excellence in education for which this Plan strives most emphatically includes engendering those humanistic attitudes and convictions needed to help direct the marvels of our technology to human purposes, or, to anticipate a lilting phrase used below in the plan of the College of Engineering, necessary to "lift the human spirit."

But what is "value" or "quality?" And how much of the latter adds up to "excellence?" To such large and abstract questions, Plan II offers no easy answers. What it does attempt to do is to ask and try to answer a great many interrelated questions in a systematic way. What should be the animating aims of a College of Tropical Agriculture in Hawaii during the years immediately ahead? How should a School of Public Health define its obligation, not just to the state, but to the nation and the world? What educational benefits are to be gained from an undergraduate core curriculum? If the purposes are such as appear valid and vital, are they being achieved? If not very well, then why not? Or how else?

It requires no unusual insight to perceive that the myriad qualitative questions concerning the future of the university are closely bound up with the fact of quantity and size. The terms here refer not only to the problem of sheer numbers, but also to the University's increasing diversity—which implies complexity—in network of functions, educational methods and styles, character of student body and staff. Must a university system capable of accommodating some 50,000 students result in more but worse? If not, then what can be done to make certain that more means better?

The extended answers to this line of thematic inquiry are spread throughout Plan II as a whole. The problems need to be analyzed in context. With this as

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*Dorothy Emmet, *Function, Purpose, and Powers:Some Concepts in the Study of Individuals and Societies* (London: Macmillian and Co., 1958), p. 252.

†Academic Plan I, p. 6.

preamble, it is time to return to the matrix of so many of the questions, Hawaii's general population base, as the source of increasing and varied demands for higher education in these islands, and as an ultimate source of its financial support.

A Changing Society

By the year 2,000, it was once believed, the rate of population increase for the United States would level off to a stable population of approximately 200 million. Such was the consensus of the population experts until about 1940. The massive upsurge in the American birthrate since 1940, coinciding with a tremendous rise in national productivity, change the demographic picture radically. Authorities now generally agree that the population by the year 2,000 will surpass the 300 million mark.

The revised estimate has been accompanied by a significant change in national behavior. Because family planning has won such favor with many American parents, since 1960 population growth for the United States has gradually slackened. In 1967 the number of births actually dropped for the sixth consecutive year, with another decline expected for 1968. However, despite this reverse trend, the size of the country's population in 1967 reached 200 million, 33 years ahead of the date set by the experts in 1940. The disturbing message of these long-range population estimates cannot be disguised and should not be softened by easy optimism. We must still prepare for a 50 per cent increase in total population. Concretely, this means that students entering college during the 1970's will confront, during the next three decades, all the social and economic consequences of a population increase whose order of magnitude exceeds that of the total population of the United States in 1910, a mere half century ago.

The escalating population figures are matched by amazing technological and social achievements during the same period. In Hawaii the local example of the transformation has been the rapid shift of a large mass of Hawaii's people from a rural and agricultural base to an urban base and a highly industrialized life-style. One index on a national scale of this dimension of general sociological change is the Gross National Product, which climbed from $285 billion in 1950 to approximately $560 billion in 1962, apparently doubling, within a span of only a dozen years. (In terms of dollars of unchanging purchasing power—allowing for inflation—the increase was about 50 per cent.)

For the same period the number of employed persons simultaneously rose from 60 million to 72 million. Kahn and Wiener, forecasting American life in *The Year 2000,* estimate that by the turn of the next century the GNP will exceed $2,300 billion, with the labor force reaching 122 million.* Speculative imaginations have contemplated a standard 30-hour work week encompassing four days. The same authors envisage that in this leisure-oriented, perhaps boredom-haunted, future society it should be feasible, whether or not uniformly desirable, for a man to spend 40 per cent of his life on a vocation, 40 percent on an avocation, and 20 per cent on vacation—simply relaxing.

Such intimations of utopia have no place in this Academic Plan II, which rather assumes that the University at any rate will be working at least as hard as it is now. The primary concern for the immediate future extends to 1975-1976, although by implication this report necessarily foreshadows the next 25 or 30 years, when graduates of today's classrooms and curricula will be rounding out the earlier portion, and probably the most productive period, of their active careers.

Society's Need for Trained Intelligence

A specific index of the educational future of young people in relation to the economic system is the pattern of employment. In other words, the occupational opportunities and decisions open to youth today forecast the potentialities of American life tomorrow, its less tangible satisfactions as well as its immediate material rewards. Furthermore, among the legacies one generation hands on to another is the quality of the environment they leave behind them, both physical and social, as determined not by chance or automatic "forces" but by choices made and services rendered.

An outstanding feature of American life since World War II has been the shift in employment toward occupations requiring high levels of training, understanding and judgment. This strong movement has helped to produce, along with rising incomes, attitudes and aspirations favorable to study, favorable both to the things of the mind and to the world of possibility, where the mind's choices are transformed into act. It is gratifying to us in higher education to know that economic growth and prosperity as shown in the GNP are related to the educational caliber of the population. If a university can serve as a kind of knowledge factory, it is good news to hear that the firm is solvent and the system likely to endure.

In 1964, when Plan I was adopted, this same point regarding the relationship between GNP and the scope

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*Herman Kahn and Anthony J. Wiener, *The Year 2000: A Framework for Speculation on the Next Thirty-Three Years* (New York: Macmillan and Co., 1967).

and quality of American educational institutions was underscored, and it is appropriate here to repeat the application.

> The fundamental relation of manpower policy to economic policy has been . . . demonstrated by economists studying the nature of economic growth. *More and more, these studies point to the improvement in the quality of human resources as a major source of the increased production.* Thus it has been calculated by one authority that for the period 1929 to1957 the improved education of the work force accounted for more than one-fifth of the increase in real national product. This was a larger share than that provided for by the increase in capital investment. Education combined with the advance of knowledge (through research) accounted altogether for about two-fifths of national growth during this period. *Clearly, our manpower program must be designed not only to balance the needs and resources of the present but also to project those needs and resources so that current investment in manpower is shaped to future needs.**

For various reasons the long-range future of Hawaii, so far as it depends on the balance of her resources and needs, is highly problematic. What is certain is that this state, deficient in natural resources other than its climate, must live by its wits, and that quality education and quality human resources are costly. They will become even more so as society becomes more industrialized, more dependent on tools of analysis and the results of automation, and almost unimaginably more complex. Forty years ago, or even 20, the kinds of jobs available in the labor market were not only less plentiful but also much less demanding than most jobs today. Occupations now requiring formal education employ an ever larger proportion of the total supply of workers, while those which take relatively limited training have been sharply decreasing. In the immediate future the most imperative need will be for persons in positions requiring substantial educational background at the higher levels.

According to the occupational outlook studies of the U.S. Labor Department, the largest increase in employment between 1950 and 1965 was among professional and technical workers. In these two categories the rise reached almost 50 per cent during those 15 years, a rate of growth about three times the average for all other groups. Among the scientific group, mathematicians and physicists showed the most rapid rate of increase. Exceptionally steep rises also appeared in the numbers of elementary and secondary school teachers and medical and health workers during the period. Contrarily, the management group, including officials and proprietors, rose at a slower rate of growth than that of the whole labor force. Clerical workers increased about a third between 1950 and 1965, at a rate second only to that for professional workers.

It is significant that employment gains have also generally concentrated in occupations at the top of the educational ladder, especially in ranges where the demand has been insistent and where the longest period of preparation is required. Within all categories named above, the consistently bunching pattern has been toward increased employment of workers at the top of the skill range for the group, while opportunities continue to narrow for those with minimum qualifications.

Labor Department studies clearly prove that the policy of higher education should be to equip graduates for key positions of responsibility in fields requiring the most advanced types of study and understanding. The national trends as projected into the 1970's are: (1) a continuation through 1975 of the relatively rapid growth of all white collar occupations, especially professional and technical positions; (2) a slower growth of blue collar occupations as a group, with craftsmen experiencing the most rapid employment increase and with none in the employment of manual laborers; (3) a faster than average growth in service worker employment; and (4) a further decrease in the ranks of farmers and farm workers.

Despite Hawaii's unique history as a Pacific monarchy, American territory, and finally a state, the unfolding economic scene in the islands is becoming more and more of an illustration of the same social and economic forces generally at work throughout the United States. Here, too, the developments in nonmanual occupations are a result of technological acceleration, expansion of educational and health services, increase in the scale and complexity of business enterprises, and of course emphasis on research and systematized organization in all important fields. Looming large among these is government, with its multiple activities concerned with environmental resources and community development. Within a brief interval of slightly more than a half century, Hawaii has been transformed from an essentially rural, agrarian community to a complex urban society dependent on commerce, certain light industries, the constellation of tourism activities and a variety of service specialties for its relatively balanced but limited economic base.

Today Hawaii's population of approximately 850,000 is very largely urbanized. The causes and consequences of the metamorphosis are sometimes beautiful and sometimes traumatic but in any case visible—on the highways, in the supermarkets, in the spread and spill of suburbia, in the noisy skies and the new hotel complexes springing up on outlying islands —in short, in the life and work of the state. Planting operations in sugar and pineapple were among the earliest to be revolutionized by the new technology, with a resulting migration to the city and into urban occupations. Fresh environmental influences have stimulated the feed-back processes of urbanization, reinforcing the original factors leading to urban growth and social transformation.

**Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization, and Training by the United States Department of Labor: Transmitted to Congress, March 1963* (U.S. Government Printing Office, 1963), pp. xii-xiii; italics added. Trends tabulated in this report are projected to 1975 in a publication of identical title transmitted to Congress in April 1967.

The recent occupational pattern in Hawaii, a reflection of altered needs, strivings and satisfactions on the part of the entire community, corresponds closely with the record of the nation as a whole. Employment gains in Hawaii over the past two decades have generally clustered around the upper brackets of the educational scale. Within each of the categories of occupation, the consistent trend has moved toward increased employment of workers at the top of the skill range for the group, and toward shrinking opportunities for workers with minimum qualifications.

From all evidence the University of Hawaii and its sister institutions of higher learning function effectively in preparing qualified and motivated young people for better-paying, presumably more satisfactory employment.

However, the troubles of American cities and their inciting social and economic causes are insistent reminders to universities that a considerable portion of adults lack sufficient education to get and hold jobs that would bring them a decent standard of living. Amidst unprecedented national affluence, about three million Americans are unemployed, some living in depleted industrial or agricultural regions, some in decayed and teeming city ghettos.

Hawaii is more fortunate than the continental states, with a lower rate of unemployment and with housing problems that still seem capable of solution. However, we cannot congratulate ourselves merely because conditions are worse elsewhere, if they are not optimal here—and they are not. The number of public welfare cases in this state increased from 7,400 in 1961 to 11,500 in 1968—one indicator of the presence in our community of a large number of persons who are falling by the wayside.

Higher education and its associated public service functions cannot help solve all problems of poverty and social dislocation, though more can be done than is now attempted—and the next two chapters speak to the point. The population of young adults is, however, the particular clientele of a system of higher education, and the University of Hawaii must examine its programs and student support facilities to see how it can effectively reach and serve the young people now excluded from education beyond the high school. The new community colleges have particularly good opportunities to be of service, but there is a role here for each campus in the University system.

Conclusion

In the autumn of 1968, it was estimated that almost 7 million persons were enrolled in U.S. colleges and universities, nearly double the number enrolled in the fall of 1960. By 1975, it is expected that approximately 10 million students will be attending college.

In much the same manner, enrollment at the Manoa Campus of the University of Hawaii more than doubled, from a total of 7,511 in 1960 to 17,082 students in 1968. (Appendix Table II.) And it is anticipated that enrollment at the University of Hawaii, including the Hilo and Manoa campuses, will exceed 25,000 by 1972. Projections point to an enrollment by 1975 of approximately 30,000 students, well over a four-fold increase within a span of 15 years.* Adding community college students brings the total projected enrollment of the University of Hawaii system to more than 45,000 by 1975.

In any analysis of the need for a greater supply of educated talent, it is well to remember that the figures represent persons as well as projections. The justification for attempting to assess some of the prospects of these thousands of lively minds and bodies in terms of the GNP and the occupational escalator is that their hopes and chances will be profoundly influenced and to some degree sharply determined by demographic, social, industrial and economic contingencies that can best be analyzed operationally in quantifiable terms. To cope with these looming contingencies will be another matter, requiring powers of synthesis and understanding as well as techniques of precise analysis and measurement. Therefore an important mission of the University of Hawaii remains that of providing a broad range of programs representing all the major disciplines and the several basic modes—logical, empirical, moral, esthetic—of human knowledge.

The student population of the University system will continue to grow more diverse as it grows larger. A particular effort will be made to reach potential students now debarred from higher education by the environment or family circumstances in which they grew up, as well as increasing numbers of students already considered to be of superior quality. Therefore the University plans to expand its already broad range of programs and learning opportunities.

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*Enrollment projections are dependent on a number of trends. Among the more significant are: the general population base, the proportion in the college age group, the increasing proportion of young people who attend college, availability of alternative facilities in Hawaii for higher education, and the mainland-Hawaii-foreign exchange of students.

Chapter 4: THE UNIVERSITY'S RESPONSE TO CHANGE: GENERAL POLICIES

The University of Hawaii underwent basic changes between 1963, when the first Academic Development Plan was formulated, and 1968, when this second Plan was prepared. The most obvious change is growth: in the five years, daytime student enrollment and the number of students receiving degrees approximately doubled, while the faculty and staff increased by 125 per cent. Four new professional schools were established between 1963 and 1968, and 10 additional doctoral programs. With the creation of community colleges in 1965, the University became a statewide system of higher education.

Qualitative changes have been even more significant. In 1963 the University was a state university of average size and competence, overall, though with ambitions to serve more broadly—particularly after the creation of the East-West Center in 1961—and with greater distinction. During the period of Academic Development Plan I, aggressive recruiting brought to the Manoa Campus an increasing number of outstanding faculty members, so that several departments and research units of the University now have attained national stature. Thanks to strong budgetary support by the state and federal governments, the University is now in the mainstream of scholarship, its faculty making frequent contributions at national and international professional meetings and to the literature of science and letters.

At the same time, the student body has also been changing. In September 1963, only one-sixth of the students enrolled at the Manoa and Hilo campuses were non-residents of the State of Hawaii. In September 1968, almost a quarter of the students were non-residents, coming from mainland states (16%) or from abroad (6%). The ability of the University to attract students from every American state and from every continent—despite scholastic entrance requirements higher than those faced by local students—is evidence of the increased esteem in which the University is now held academically, as well as of the attractiveness of a non-discriminatory tuition rate. The presence of more out-of-state and graduate students (the latter increased from 2,000 to 3,800 in five years) enlivens the campus and its academic programs.

Occupying an urban campus, situated in the state capital and on the main air routes to Asia, the University of Hawaii has become increasingly involved with the broader society in which it lives. The interaction takes place in many ways—in research programs seeking to identify causes of juvenile delinquency and causes of war; in introducing social science undergraduates to the city's slums and in bringing University courses to Polaris submarine crews; in University programs of instruction and service ranging from traditional agicultural extension work in Hawaii to medical programs in Okinawa and Samoa, to school development in Thailand and Laos, to a graduate business school program in Japan.

State and national demands upon the University's services appear to have no visible limit. The University's response in providing overseas programs, a faculty increasingly competent and mobile, together with an expanding student body becoming every day more awakened to the problems of society, are reasons for believing that the University of Hawaii will continue to develop as an institution of international as well as national and local significance.

However, service begins at home. The primary responsibility of the University of Hawaii and of each of its constituent units is to serve the people of Hawaii. This Academic Development Plan recognizes that responsibility and seeks to provide for its discharge. The operational principle is that programs of the University adopted in the national interest, or to foster international objectives, should not be undertaken at the cost of weakening services to the resident student body or to others in this state. Rather, with advance planning and adequate staffing, national and international programs should enrich the domestic instructional, research and community service operations of the University by adding to the experience and capacities of our faculty.

Social Commitment

As the Introduction to this Academic Development Plan makes clear, the basic functions of the University —instruction, research and service—are ongoing operations. Our goals (which may be thought of as the dominant ethos during a particular period) relate to these three functions and reflect the emphasis then being given to one or more of them in preference to the others. Thus, while we reiterate our acceptance of the basic functions of the University, it is proper to speak of changing goals—the "mix" of human and material resources allocated to each of the functions—over such a period as the one covered by this plan.

A few decades ago, the typical American university emphasized the function of teaching above all others. As long as the student body was small and socially homogeneous, the role of the university was largely limited to passing on certain traditional values and patterns of behavior to students who became socialized for prepared roles in society. With the exigencies of an expanding technology in World War II and the years which followed, industry and government turned more and more to the American university to engage in basic research. Particularly after 1957, an unprecedented growth has occurred in the research divisions of many universities to the point where some universities are clearly identified as research institutions in which teaching and service play secondary roles. But during the same period two other trends were developing more or less unnoticed: the number and diversity of students, particularly at the undergraduate level, grew enormously; meanwhile, around the university social changes of unprecedented magnitude were occurring. Universities are now being asked to take a more active role in identifying the problems associated with these changes and to some extent to aid communities in solving their problems.

Since a university is a loosely structured, diverse coalition of academic styles and interests, it would be improper for "the University" to state that its goals are exclusively connected to one or another of its functions. A university that only teaches remains a college or an academy. One that is only research-oriented becomes an institute, and one which is committed only to service is likely to become a social agency or a political party. "The University," to the extent that such an entity exists as more than a concept and a legal entity, can strive in the interests of academic freedom and diversity only to provide the options and resources which allow professors and students to follow their individual academic interests. It can as an institution, through its collective decision-making process, decide that an imbalance exists among the resources devoted to its various functions. If, for instance, certain disciplines or research fields are not adequately funded for the purposes of the University, it can seek to redistribute its resources internally or seek new resources to support those activities.

This plan at several points addresses itself to the need for placing more emphasis upon instruction and instructional innovation. In addition, it is clear that there are numerous students and professors who desire this University to assume a greater responsibility in identifying social problems and taking action upon them. They are advocating that one of our goals be an increased service commitment.

This commitment could take many forms: direct assistance to the community, research into social problems, student credit for work performed in the surrounding community, increased recognition for professors who engage in community-oriented research and service. As a social entity itself, the University can recognize the intellectual and moral reasons for expanding a service commitment. It cannot, however, declare itself to be the unequivocal advocate of a particular moral stance, ideology or social policy. To do so would be to establish an inappropriate test of the suitability of any individual to be a member of this University community. The University can commit resources to those who wish to increase the interaction between the University and the surrounding community. It cannot require that professors and students engage in such interaction unless it is their desire to do so.

The University should encourage the establishment of more courses dealing with community problems, particularly courses based upon a greater degree of involvement in the larger community. Later in this chapter, we recommend that the University actively recruit students in areas where educational advantages have been below par. In addition, the University should establish programs which focus upon current social and technological problems.

Organized programs that focus on applied social research can explore the problems common both to the active and contemplative lives of the University. Out of such exploration could grow a curriculum that contains a service commitment shaped by the results of research. These arrangements would not represent an abandonment of the traditional curriculum. Quite the contrary, the traditional curriculum would still continue to be the mainstay of the University. But the University can provide an additional dimension to its life, furnishing faculty members with a greater opportunity for social creativity by providing the means for University-accredited involvement in service programs without sacrifice of disciplinary and research activities.

The organized programs should have a small professional staff, academically competent, service-oriented, and experienced in applied programs as well as in university work. They should provide support for faculty members and students who are interested in such activities through research grants as well as appropriated funds to attract faculty talents to the problems being investigated. In this way they would recruit faculty members whose interests to some degree coincide with the activities of the program.

One such arrangement already under consideration, the Pacific Urban Studies and Planning Program, would emphasize broad aspects of planning, service and community development. The Program would involve the Departments of Architecture, Civil Engineering, Economics, Geography, Political Science and Sociology, as well as the Schools of Public Health and Social Work. This program or another might deal with environmental problems, such as transportation, the design of tropical buildings and communities, air-water pollution and communications. A third program might be concerned with community integration, studying such problems as poverty, under-employment, race relations, and the effects upon Hawaii of new patterns of immigration. A fourth might focus on conflicts—ranging from problems of war and peace to intergroup antagonisms within our own culture.

The organization of each of these programs should reflect the faculty and disciplines involved. Machinery for establishing and administering each program should be determined through consultation between the administration and Faculty Senate.

The University should also consider establishing a Council on Community Service consisting of representatives of the colleges and the Office of Continuing Education and Community Service. Such a Council could review present University service commitments, identify new areas where service is necessary and encourage the cooperation of subunits of the University in common programs.

Accommodating Diversity

As it has grown and moved toward national prominence in many fields, the University has drawn to it an increasingly diverse faculty and student body. Partly because of the University's emphasis on Pacific and Asian studies, partly because of the attractiveness of Hawaii and its cosmopolitan society, scholars have come to this faculty from around the world. The effect is stimulating to the campus, and can be expected to continue even without a deliberate policy of recruiting an international staff.

The widening geographical origins of the student body have already been mentioned, but the implication for purposes of academic planning of such diversity of student interests remains to be considered. Students at this University are far from being homogeneous in their abilities, interests or expectations. Over the past several years, a larger percentage of excellent students has come to the University, and the percentage with mediocre high school records and dubious college potential has been reduced commensurately. The average of undergraduates' scholastic aptitudes is above national norms established by the Educational Testing Service for the broad fields of English composition, mathematics, social sciences and history, and natural sciences; this was demonstrated by examinations given to large samples of the sophomore class in 1965 and 1966.

Nevertheless, these and all other attempts to gauge the scholastic abilities of University of Hawaii students continue to show an enormous range. Some low scores are to be expected, since, as the sole public university in the state, Hawaii must set its admission standards to accept local undergraduates who have any reasonable chance of completing a baccalaureate program. (Standards for out-of-state applicants are higher.) The top end of the range grows larger each year as more superior students are attracted by the faculty and curricula at the University—and as they find attendance at the best mainland institutions increasingly expensive. Motivation and interests of students vary at least as much as their scholastic aptitudes. Hawaii has its share of late adolescents and young adults who have come to campus for reasons largely irrelevant to higher education—most of all, for lack of something better to do after high school and before a job or marriage. Some come because their parents expect it, or they think their future employers will. A large group of undergraduates, and most of the graduate students, are primarily interested in college as preparation for a career. They may be impatient with general educational requirements, which seem to be unrelated to career qualifications, and uninterested in that mixture of social issues and social events called "campus life." A relatively small but increasing number of students are intensely concerned with social issues, on and off campus, and much less interested in curricula which prepare them for a career. Between these "activists" and the "careerists" lies a large portion of the student body.

Since no one wears his motivations on his sleeve, the University must admit all students who academically qualify for higher education, even if they have no abiding interest in it; these students probably contribute heavily to the large flunk-out rate (about 18 per cent) of the freshman year. For all its students who are both interested and qualified, the University should provide appropriate curricula and teaching, matching diversity of approach to higher learning to the diversity of the students themselves.

This empirical policy challenges stereotypes and oversimplifications. A case in point, conspicuous at this University, is Varsity Theatre. Varsity Theatre is a commercial movie house, near the Manoa Campus, which the University has rented for use of large classes—an introductory psychology course, world history, general science, etc. It has been picketed by students protesting against the large size and impersonality of the classes. But interviews with undergraduates attending Varsity Theatre classes indicated that many like the large lecture hall, its spotlight on the instructor, its obscurity for the individual student. For the student who is passive or self-conscious in the classroom, the anonymity of the Theatre may be as welcome as it is hateful to the students who delight in dialog—and the University must provide education for both.

Hawaii has a special human resource in local young people of promise who do not attend college because of their poor academic preparation and lack of motivation and encouragement, stemming in part from cultural differences and inadequate financial support. The failure to attract, admit and retain more of this group as students is a loss to society and to the University, as well as a denial of real equality of educational opportunity to a part of the younger population who merit special attention. The University has always made adjustments in standards of admission and performance for foreign students to compensate for their academic limitations arising from differences in cultural background. Greater efforts must be made in a similar direction to advance the development of the academically unprepared but educationally-minded person in our own communities. The already broad range of programs within the University provides opportunities for many kinds of interests. During the interim of the Plan, further programs are projected for this type of development. Existing financial aids—scholarships, tuition-fee waivers and work opportunities—must be increased to make it possible for any aspiring student to overcome economic obstacles. Expanded efforts at compensatory programs, such as Hawaii Upward Bound, remedial courses at Hilo and at the Speech Communication Center, should be undertaken to make college success more likely for this class of potential students. Campaigns to explain the opportunities available at the University should be launched by schools and community action groups.

As it continues to grow to a 25,000-student institution, the Manoa Campus will establish more avenues to the baccalaureate, including large lecture classes; small seminars and discussion groups; courses explicitly designed to provide professional, technical competence, and other courses reaching out to the community and its social problems, where student awareness and involvement are the primary goals; classes organized around the residence halls or other relatively small groups in the student population; individualized courses of study in which individual students go at their own pace; courses organized—and in some cases taught—by qualified students.

Awareness of social crisis, nationally and internationally, has brought to this University, as to so many campuses, increased interest among students and faculty in the causes of conflict and means of non-violent resolutions. Again, there is a wide spectrum of political and philosophical attitudes in the University community. Some protest the offering of ROTC courses as the means of carrying out the obligation of a state land-grant college, under the first Morrill Act, to offer training in military tactics, or the acceptance of research contracts from military agencies or to forward the programs of these agencies. Others protest the protesting and would have sanctions applied to the protestors. The University, if it is true to its tradition and function in society, must accept the broadest range of expression and not take absolutist positions. It offers military science courses and also courses concerned with the conditions of peace. Under policies designed to protect academic freedom and ready access to knowledge, it permits its faculty to take on research projects without making moral judgments as to their subject. It cannot permit the repression of opinion which holds militarism—or materialism or scientism or pacifism—anathema. It is in the nature of a university to open its doors to those who challenge accepted ideas, as long as they are qualified to enter into a discussion of these ideas and do not try to obstruct others in their equal right of inquiry and discussion.

Providing Innovative and Multidisciplinary Approaches

Diversity, the pluralistic approach to the higher learning which this University espouses, requires innovation, the constant attempt to find more satisfactory, more effective ways of educating students. Many innovations have been adopted over the past two years. A few examples are the residential learning project in Johnson Hall, a men's dormitory, where two classrooms and six faculty offices have been made available for teaching several small sections of general education with the hope of creating a feeling of community among the lower division students in the projects and their instructors; a seminar on the college experience given for freshmen and conducted by seniors who are guided by a faculty member; a series of wide-ranging undergraduate courses, belonging to no department, but listed as "Interdisciplinary Studies"; a multidisciplinary curriculum in biology; a "non-major major" option for students, which permits them, with faculty advice, to design their own curriculum concentration; audio-tutorial arrangements for learning science.

Extraordinary effort was required to begin each of these innovations—to win faculty and administrative approval, to get resources. In an institution as large as this University, it is wise to submit curricular variations to a hard test before they are put into operation, for without such limit there may be chaos. However, present circumstances too strongly mitigate against innovation and consequently overprotect the standard or more run-of-the-mill courses of study from the challenge of competition.

The problem does not seem to lie in rigid attitudes held by either the faculty at large or by the administration. On the contrary, visiting observers comment on the receptivity of this University to new ideas, on its propensity to change. Rather, the central problem seems to be the traditional departmental structure of the University and its budget practices. Until now, virtually all resources for instruction have been distributed to the departments which comprise the several colleges of the Manoa Campus. Each department is treated as if it were not only an administrative unit convenient for the grouping of faculty members, but also an independently functioning instructional entity.

Departmental primacy works reasonably well in providing good instruction for students majoring in the work of that department. Judging by the widespread revision of courses at this University in the past few years, most departments have continued to revise their curricula to include new knowledge and reflect new syntheses—as long as the syntheses lie conveniently within the range of some department's interests.

Frequently, however, the department is not greatly interested in devising better ways of teaching its introductory courses for students not intending to major in the field, or of working together with other departments to innovate multidisciplinary instruction.* A prevalent idea is that such activities are poor career risks for members of the department seeking professional recognition, tenure or promotion. Consequently, these activities usually get a low priority in departmental budgeting.

The few multidisciplinary courses added to the curriculum since Academic Development Plan I (such as "Man in Society," "Man and the Arts," "Man in His City,"and the biology curriculum discussed below in the next chapter on the College of Arts and Sciences) had their sponsorship outside the departments, either in the college office or in the central administration.

A New Division

This experience suggests that the University should provide in its budget and in its administration for the support of curricular innovation and of those aspects of teaching in which departments do not have a primary interest, namely multidisciplinary courses and general introductory courses. It is planned to establish under the Vice President for Academic Affairs an office—it could be called the Office for Multidisciplinary and Experimental Programs, or less solemnly, Operation Upstart, or simply the New Division—which would take particular responsibility for strengthening these aspects of the undergraduate programs of the University.

The New Division will not have a faculty, other than the small staff regularly attached to the Honors Programs, which would come under the Division along with the presently homeless Interdisciplinary Studies courses. The New Division would receive a budget for these purposes:

1. To support curriculum innovation, a function now performed by the Dean for Academic Development.
2. To obtain the services of faculty members, on a part-time or short-term basis, to teach multidisciplinary courses which have been approved for presentation, but which are not budgeted for in any department.
3. To provide academic advising and administrative support for experimental programs, such as the non-major baccalaureate and the residential learning project.
4. To stimulate departments to improve their general education offerings, using position transfer or other budget support.
5. To administer the Honors Programs and Interdisciplinary Studies Courses.
6. To work with student organizations which want to sponsor or participate in "free university" courses, including the administration of an interim session between regular semesters, if one is established.

It is by no means intended that the New Division will have a monopoly on curricular innovation or detract in any way from curricular developments initiated by the individual colleges or schools. The College of Arts and Sciences is to be encouraged in its plan of inviting its faculty members to devise experimental multidisciplinary "schools" within the College. It is expected that all colleges and campuses will, in their greatly differing circumstances, imaginatively seek better ways of achieving their academic goals. However, the New Division would particularly be responsible for ensuring that freshness of approach and supra-departmental synthesis of instruction do not fail to find continuing support at the University of Hawaii.

The Committee on Undergraduate Instruction, now loosely attached to Academic Affairs, would become the advisory body to the New Division with respect to innovations in the baccalaureate programs which affect the University at large. The Committee could help the Division in determining how its funds should be used and in appraising the multidisciplinary and experimental programs it supports. At the same time, the Committee would continue its function of providing oversight to the entire general education core, including established as well as experimental or multidisciplinary courses—an area of the curriculum discussed at the end of this chapter.

An Open Academic Community

The responsiveness of the University to changing demands upon it, the rapidity with which it adopts new ideas, its ability to encompass diversity without hurtful conflict, all depend on the openness of the academic community, on the ease of communication between students, faculty, administration and Board of Regents. As this Plan is being written, a number of new lines of communication are being tried. Some may prove ineffective, but it is essential to the well-being of the University that enough succeed to surmount the barriers that naturally arise among the components of a large and complex university. By the same token, the University must develop a closer understanding with the larger community which it serves and by which it is supported, so that the vital interdependence is appreciated and nourished.

It is particularly important to ensure that students who are interested in such involvement have widespread opportunities to participate in the formulation of University policy and in the appraisal of academic programs. For the past several months, many students have been involved in the drafting of a University conduct code; there are student representatives on many of the major committees of the University and

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*"Multidisciplinary instruction" is intended to encompass both multidisciplinary courses—which bring together representatives of established disciplines to examine a problem from their various points of view—and interdisciplinary courses taught, either by a single individual or by a group of instructors, so as to utilize perspectives, orientations and approaches which cut across disciplinary lines and which differ from those espoused by the established disciplines.

of its constituent colleges and campuses; faculty members are being evaluated by their students on the Manoa Campus; a few units ask student advice in formulating their courses. Such student involvement is for the most part quite recent; in large part it is in response to the voices of the students themselves. It is invigorating to the educational transaction and should be encouraged.

The openness of the campus community to the range and play of ideas essential to a vigorous university requires the understanding and support of the larger community, most certainly including the public's representatives and political leaders in the state capitol. Whenever a highly varied faculty and student body are free to exercise their thought processes, to debate differences of understanding, opinion and judgment, then a clash of ideas is bound to arise —not only inside the classroom but outside as well. The intellectual ferment that results is to be counted not as a danger to the community but as evidence of the vitality of the University and of the community in which it lives. It must be recognized however, that there is a categorical difference between disputation which is intellectual and that which degenerates into physical coercion. It is the business of the University to maintain this vital distinction in its provision of an open market place for ideas.

Staffing the University: Researchers and Teachers; Generalists and Specialists

The varied academic programs of the University require effective faculty performance over a wide range: teaching undergraduate and predominantly lower division courses in general education, teaching undergraduate courses in the many fields of specialization, teaching graduate courses at the master's and doctorate levels, doing research, contributing professional services to the community and nation. Ideally, each tenured faculty member performs well in each of these areas: he is a scholar; he knows his field well and can teach it "straight," or relate it to broader problems or studies, for the edification of new freshmen, post-doctoral students, and townsmen alike; above all he is a well-educated man who enriches and enlivens the campus and the community.

Not all faculty members, at any university, conform to this ideal. Some love to teach, but are not much interested in research. Others center their professional life around their specialization; they delight in research and in discussing it with their colleagues and graduate students, but have little to say to the non-specialist, including most undergraduates. Some are proficient rather narrowly, but deeply. A large university provides positions at which these many varieties of academic man can make their contributions, but it continues to seek as many teacher-scholars as it can.

The problem is that there are never enough of such people. They are a scarce resource and must be economized. The tendency is to economize by having them concentrate on graduate instruction and research. (This is by no means always true: many of the best scholars teach introductory courses, and even in general education, but it is sufficiently true to make for student resentment and faculty unease.) The scholar-teacher, an unusual person in demand by many colleges, can choose his own program, and he seldom chooses to teach freshmen or general education, even if he is interested in both.

The chief reason is obvious: such courses are seldom enjoyable. They are usually large, with little opportunity for discourse with students, they generate much paperwork and exam grading; they are seldom adequately staffed with teaching assistants to do the tedious paperwork. How much more pleasant it is to stay in the smaller, usually better staffed advanced class with its associated research work.

Large universities have developed different basic approaches to staffing their faculties. One—tried by Florida, Minnesota, Michigan State, Ohio State and a few others—is to create two faculties, a junior faculty composed of generalists who teach students in a lower divison college, and a senior faculty composed of researcher-scholars who teach upper division and graduate courses. A second approach is to recruit broad-gauged scholars who are encouraged to teach at all levels.

This University has widely used the second approach, though with a major element of the first: elementary courses in such fields as English, speech, foreign languages and mathematics are largely taught by junior faculty, typically without doctorates, who serve for three or four years and then are replaced. Using this staffing pattern, our success in providing excellent instruction for freshmen and sophomores is only partial—and we plan to do better.

Improving Undergraduate Instruction

During this Plan period, it will be the policy of the University to continue to recruit as many teacher-researchers as it can, appointing more narrowly functioning faculty only as necessary to carry out its programs; i.e., it will avoid the creation of a junior faculty engaged to teach lower division courses. Rather, it will try to make the instruction of freshmen and sophomores attractive to the best scholars of the faculty, by:

1. Limiting the size of lower division classes, wherever feasible, when the professor greatly prefers teaching relatively small groups of students.
2. Providing better facilities, audio-visual support, and more teaching aides (graduate assistants or selected upper division students) for large classes.

3. Reducing the overall teaching load for scholars undertaking these assignments.

Each college, most especially Arts and Sciences, will have part of its budget earmarked for the improvement of undergraduate instruction. As these supports are provided in the college budgets, each department offering lower division courses will be expected to have its most experienced, most expert scholars who are suited to this work teach introductory and general education courses in the department. This assignment might be rotated annually, or retained by a given professor for several years, as arranged within the department. It is hoped that the excellent teachers on the faculty who now devote most of their time to teaching lower divison courses will continue to do so and that the University will be able to recruit more of this rare breed.

Large service departments, notably English, speech and mathematics, may have to retain over the next several years their present arrangement of a short-term, rotating junior faculty for their huge introductory courses. However, as the communication and mathematical skills of entering students continue to improve, as student initiative in learning becomes stronger, it is planned to discontinue this pattern of staffing, replacing it with one based on more experienced scholars, as throughout the University.

Stimulating Student Initiative

Plan I stated the importance of emphasizing learning, rather than teaching, so that students would assume more responsibility for their education. If this change in emphasis has occurred over the past five years, it is not yet clearly evident—not as evident as student initiative for a stronger voice in policy-making on campus. Increasing students' academic activism necessarily takes time, but it can be hastened by the following institutional changes.

Encouraging Credit-by-Examination

Many students come to campus with attainments in college-level work. Sometimes these accomplishments are certified by Advanced Placement credit for superior high school course work. If the student has attained the knowledge on his own initiative, the University allows him to "challenge" any course, and, if he passes a comprehensive examination, will give him credit for the course. Until now, little use has been made of this provision. Aside from an obscure line in the University catalog, it was not publicized. If a student asked to take a course by examination, he had to show a 2.4 grade point average, the examination had to be prepared for him ("more comprehensive than the usual final examination"), and he had to pay the full tuition fee of $9 per credit hour.

Beginning this year, the University is broadening its credit-by-examination policy, and publicizing it. Now students can take standard examinations in several broad fields—English composition, mathematics, humanities, natural sciences, social sciences and history—or in the basic courses of economics, calculus, general chemistry and sociology—at a low cost. The list of courses open for credit-by-examination will be expanded as quickly as examinations acceptable to the academic departments can be identified or developed.

The University will also experimentally develop examinations which will test students' mastery of an entire sequence of courses, or of a major. Passing these examinations at an acceptable level will give the students credit for all the courses included in the sequence—say in a foreign language, in mathematics, in a science—or for the major. In preparing for the examinations, registered students will be able to use whatever facilities the University offers: lectures, learning machines, library, audio-visual materials, laboratories, etc. (Where space is limited, as in language and science laboratories, first priority will of course be given to students enrolled in courses served by the labs.)

Less Dependence on Lectures

Another means of stimulating student initiative is to reduce the number of class meetings. By convention going back to the time when the principal means of instruction was the spoken word, the number of weekly lectures must equal the number of course credits. That identity has been challenged by critics of higher education, who point out that for some students and some courses the lecture is one of the least effective modes of learning.

On a selective basis, the several colleges and departments will be encouraged to reduce the number of weekly class meetings, while maintaining the credit hours. As a model, lecture courses carrying three credits would meet twice a week, the third hour being given over to the individual or very small group conferences with the professor, to preparation of written exercises for the course, to experience (in the museum, theatre, library, community) connected to the course of study. Conversely, courses now carrying three credits can be expanded to four or five credits, but continue to meet three times a week while adding these individualized experiences, which rely on student initiative.

If these efforts to make the student responsible for a greater portion of the learning process succeed, undergraduate instruction will be made much more attractive to the teacher-scholar. Care must be taken however, to ensure that the quality of courses is not adversely affected by reducing the number of lectures. What is intended is improvement, not a speed-up, in the baccalaureate programs.

Student Options

Other experiments in undergraduate instruction will further stimulate student initiative. One is to give an undergraduate the option of developing a constellation of courses around a problem or theme of particular interest to him, to serve instead of a department major as a focus for studying one area of scholarship in depth. A more ambitious proposal is to allow students to draw up their entire baccalaureate program, from freshman year to graduation, meeting the educational goals of the baccalaureate according to their interests and by the judgment of their faculty advisors. Departments may be authorized to offer multi-disciplinary degrees, in which the major spans their own offerings and those of related disciplines. Good faculty advice is critical to all these experiments, and must be provided—both in the New Division administering some of the innovations and in the instructional colleges. (Because of the large size, the problem of providing advisors is acute in the College of Arts and Sciences, where most of these experimental options will be exercised. The next chapter discusses academic advising in that College.)

The Honors Programs

An established means of increasing curricular flexibility exists in the Honors Programs, which provide additional choices for an undergraduate interested in an enriched curriculum, one which makes greater demands on him and which gives him more opportunities of working with his instructors individually or in small classes. These programs are available in all undergraduate colleges and schools of the Manoa Campus; they run through all undergraduate years. Technically, there are two programs: Selected Studies for freshmen and sophomores, Honors for juniors and seniors. Students can participate in either program, or both; both are administered in the Honors Office atop Sinclair Library.

The programs are not limited to students with unusually high grade point averages. At any stage in their academic work, undergraduates can be nominated for participation by any faculty member who attests to their good, lively, insightful scholarship, even if it has not thus far been reflected in exceptionally high grades. Partly because of this policy, partly because of vigorous recruiting of entering freshmen, partly because of the enhanced interest and qualifications of undergraduates, membership in the Honors Programs has grown rapidly since Academic Development Plan I, from 229 students in September 1963 to 575 in 1966 and to approximately 700 in 1968.

It is planned to continue to expand the opportunities offered by the Honors Programs to students who want them—to take non-standard sections of standard courses, to participate in special colloquia and seminars which cut across disciplinary lines and let the student do some work on his own initiative, to substitute appropriate courses of particular interest to him for those routinely required for the baccalaureate. As an approximate guide, the Honors Programs will be able to admit some 1,500 students by 1975-76, or about 8 per cent of the undergraduates then anticipated for Manoa. An increasing number of these students will come from the professional colleges and schools, in some of which Honors courses have only recently been offered. Additional space for small group discussions will be provided to maintain the sense of identity necessary for a good Honors Program on a large and heterogeneous campus.

Resources for Improving Instruction and Curricula

As an extension of the numerous independent activities and projects being carried on at the University towards improving instruction, it is now possible to plan a more comprehensive approach to instructional programs and courses. However, the constantly growing body of knowledge about instruction and evaluation and the increasing field of educational technology make it difficult, if not impossible, for individual faculty members and departments to plan, develop and evaluate programs of instruction without the cooperation of specialists, who contribute their own expertise to the subject matter and teaching style of the academic specialist. The services of specialists in instruction, media technology and evaluation can help faculty members and departments in their review of their teaching. Working with instructors at their request, these specialists will help provide a broader base for examining assumptions and considering the many factors involved in designing an optimal learning situation.

The Instructional Resources Service Center (formerly the Communications Service Center) will include instructional and media specialists to assist in the examination of objectives, overall planning of strategy (including presentation of material, selection of instructional media, production of workbooks and other materials, and coordination of the total instructional effort), development of the evaluating system to be consistent with the objectives, and the follow-up necessary for the program. KHET-TV will provide production and technical services for preparing closed circuit television where the instructor finds this is an appropriate medium for presentation. Curriculum evaluators in the Office of the Dean for Academic Devlopment will help the faculty member to define academic goals and objectives, establish hypotheses (allowing for the necessary play of empirical trial), and devise tests to ascertain how closely the goals were obtained and the significance of new programs for the University. Other agencies which may contribute to the planning, implementation and evaluation of instruction include the Computing Center, the Speech Communications Center and the Educational Research and Development Center.

To keep faculty members informed about the systems approach to instructional planning just outlined, a continuing program of seminars and workshops for professional development will be instituted. Conducted under the auspices of the Instructional

Resources Service Center, these sessions will present new concepts and practices in instructional technology and the underlying principles of teaching, learning and communication.

The plans of the College of Arts and Sciences to analyze its methods of instruction and experiment with a variety of approaches are outlined in the next chapter.

General Education: The Core

A major proposal of Academic Development Plan I was implemented in 1966, when a general education requirement, applicable to all baccalaureate curricula, was adopted. In essence, the requirement is that each student demonstrate his ability to communicate in English—orally and in written exposition—at University standards; and that he understand: mathematics or its basis in symbolic logic, the scientific method as illustrated in the natural and social sciences, the broad sweep of world civilizations, himself in relation to society, and some bases for making ethical and esthetic judgments.

Faculty and student opposition to the present general education core is manifest, stemming from a dislike of prescription, a desire for greater specialization, a belief that general education has already been attained in high school or is not essential to a university education, disagreement with the general education objectives now sought, and perhaps for other reasons not articulated. Furthermore, it turns out that the implementation of the general education requirement has been such that student choices have been unnecessarily and unintentionally restricted. Few courses have been developed to fulfill the stated educational objectives or identified as serving the purpose—currently only 18 in the humanities, 20 in the social sciences and 26 in the natural sciences. Each year, more than 6,000 students—mostly lower division students—attempt to crowd into these courses, which comprise fewer than 3 per cent of the total offered on the Manoa Campus. As a consequence, the enrollment in some courses, such as introductory sociology, psychology and economics, has risen enormously, changing the classes from lecture-discussion to straight lectures. Increasingly, students find it difficult to get places in these courses, and must attend summer session or evening classes in the Division of Continuing Education to complete their requirements.

The mechanics of student advising have aggravated the problem of crowding, particularly in the College of Arts and Sciences, where lower division students are served by a staff of faculty advisors, each of whom, in full-time equivalents, has a potential clientele of about 400 students. Records must be kept for each student and used in the interviews which precede each registration period. The College has streamlined its paperwork to expedite both recordkeeping and academic advising. One side of a checkoff sheet shows each of the standard required courses—English 101, Speech 145, etc.—but has no space for the alternatives contemplated when the University general education requirement was adopted. Thus, for all students but those who take the initiative to ask about alternatives, the "mays" and "cans" which are included in the statement on the core in the University catalog (pp. 50-51 of the 1968-69 edition) have effectively been changed to "musts."

Three current developments promise to give some relief to the apparent strictures of the general education core. One is simply the discovery that there are already more choices than students—or faculty advisors—realized. The second is the implementation this year of a policy adopted along with the general education requirement of giving students credit for core courses passed by examination, utilizing the comprehensive and subject area examinations developed by the Education Testing Service, as well as those which may be devised by individual departments of the University. Finally, the English Department is preparing to consolidate the year course in expository writing, required of most freshmen, into one semester, utilizing the two-semester sequences in literature for additional exercises in writing. The effect for students choosing the literature sequence in partial satisfaction of the distributional requirement in humanities is to reduce the core by 3 credits, or from approximately 47 hours to 44. It is hoped that other departments will also examine their contribution to the general education core and, in light of the students' abilities and capacities for learning, seek means of accomplishing the objectives of general education which are more economical of the students' time.

However, even if these alleviations are accomplished, even if a review of present courses and the creation of new courses identifies—as it should—many more choices to be added to the core, dissatisfaction with the core will remain. That which stems from philosophical differences as to the goals of education in a university cannot be reconciled, except by compromise. But that disapproval which is based on skepticism that the present general education requirement of this university accomplishes its avowed purposes, conceding them to be appropriate, is subject to confirmation or refutation by experience.

The fact is that persons taking either side of this issue can defend their position only by *a priori* argument or by appeal to their own experience. The Committee on Undergraduate Instruction, which has responsibility for oversight of the core, should undertake a longitudinal study of the general educational requirement to ascertain, as best one can, the effects of the core in helping students to attain the educational goals posited by the University when it adopted the core two years ago.

As a means to this analysis, and as an experiment of intrinsic value, the University should permit a number of students to complete their baccalaureates without the general educational requirement, much as some are now choosing curricula which do not have a conventional major. The number in this experimental group would be limited by the availability of faculty members to give them the thoughtful academic advice necessary for a student to make an intelligent choice of courses among the thousands listed in the catalog. As this experimental group reached upper division status and then graduated, their accomplishments in attaining the avowed goals of general education could be compared with students taking the regular core, with due allowance for other variables among the regular and experimental groups. The results of the comparison could provide evidence for a later decision on general educational requirements.

Summarizing, to meet shortcomings in the general education program of the University, the following changes should be made:

1. The number of choices available for students to fulfill the established educational objectives should be increased, both by designing new courses and identifying existing courses which are appropriate for students who do not necessarily intend to major in the field. The Committee on Undergraduate Instruction, working with the proposed New Division, has particular responsibility for insuring that the increase occurs.
2. Students should be informed of the full range of options in completing their general education, including taking the comprehensive examinations for credit newly offered by the University.
3. Experimentally, a number of students should be permitted to graduate without completing the University general educational requirement, the number to be limited by the availability of faculty academic advisors.
4. The Committee on Undergraduate Instruction should study the effects of the general education core, utilizing the comparative experience of those not taking the core to help measure these effects. In the light of that study, the Committee should reexamine the goals of the core, as well as the methods used to attain them.

Part II: DEVELOPMENT OF CONSTITUENT UNITS

Chapter 5: COLLEGE OF ARTS AND SCIENCES

Purposes and Objectives

The College of Arts and Sciences, the largest and most diverse collegiate unit of the University, is responsible for the general education of its undergraduates, pre-professional and advanced professional training of some students, individual and sometimes team research, and service to other groups within the University and to the community. In its educational programs it seeks not only to expose students to problems and issues that will lead them to an understanding of the nature of man and an ability to confront the problems man will face in the future, but also to give students incentives to learn by themselves for objectives chosen by themselves—not excluding the desire for pleasure and the urge to learn for its own sake.

Developments from 1964 to 1969

The Arts and Sciences statement in Academic Plan I concluded with five major recommendations: to strengthen the faculty and support their research programs more effectively; to experiment with new models and techniques of instruction, including larger classes, small honors sections, independent study, comprehensive examinations and technical aids; to consolidate programs in subject areas where recent progress requires close collaboration of what had been separate disciplines; to develop certain new fields of concentration by combining the traditional course work of separate disciplines; to develop more adequate physical facilities for specialized types of learning, such as language laboratories.

Numerical Growth

In the five years since Plan I was adopted the College has grown substantially in size and in complexity of organization. The number of credit hours taken by its students has increased by 50 per cent and its faculty has approximately doubled to almost 900. The College now houses 33 separate departments and programs as compared with 25 in 1963.

Instructional Programs

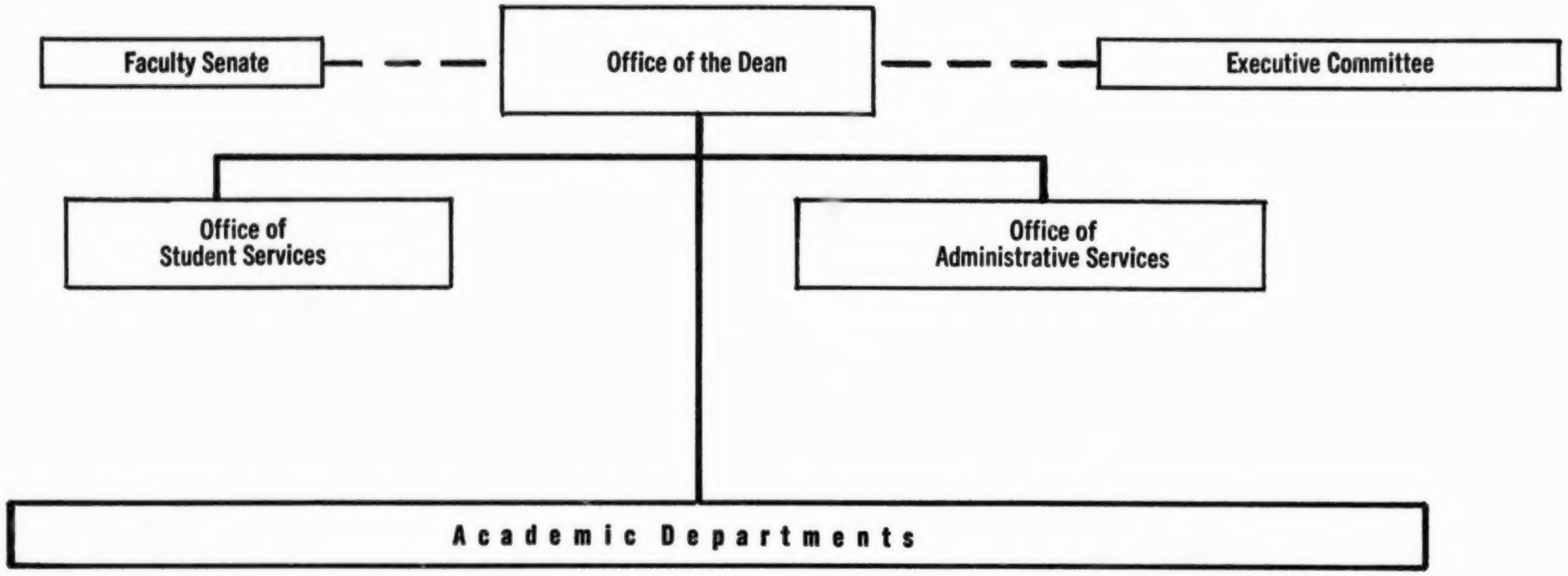
During the same period the College has completely revised its program for the bachelor's degree, and has begun offering degrees in architecture, biology and classics. This year it participated in starting an experimental "non-major major," whereby qualified students can devise their own programs of concentration, including work (through courses or independent study) in several departments, instead of being confined within a single department's major requirements. New instructional programs have been introduced in earth sciences and in Asian languages, and six additional departments within the College have begun offering the Ph.D. Two popular cross-disciplinary courses, "Man in Society" and the "College Experience Seminar," have been established. At the same time, the College has adopted advanced placement programs and has begun granting credit by examination as ways of helping qualified students to accelerate their progress through the University.

Concurrently, the College has taken a number of steps to improve instruction within established courses and departments. The lower-division and major programs in the Department of Speech-Communication and the major program in Political Science have been substantially altered. Teaching assignments in the Department of English have been adjusted so that no instructor in English now teaches more than 75 students in composition at any one time. Methods of faculty recruitment have been improved throughout the College, as department chairmen now regularly attend national and regional professional meetings to interview at some length prospective new faculty. The staff in a number of departments has been systematically developed in line with departmental goals; departmental leadership and organization have been strengthened.

Student Advising

The system for advising students, particularly lower-division students, recognized as an alarming weakness in the College in Plan I, has been improved.

COLLEGE OF ARTS AND SCIENCES


Faculty Senate
Office of the Dean
Executive Committee
Office of Student Services
Office of Administrative Services
Academic Departments

Art & Architecture
Asian & Pacific Languages
Asian Studies
Drama & Theatre
English
English as a Second Language
European Languages
History
Linguistics
Music
Philosophy
Religion
Speech—Communication

Botany
Chemistry
Geosciences
Mathematics
Microbiology
Oceanography
Physics & Astronomy
Science, General
Zoology

Anthropology
Economics
Geography
Political Science
Psychology
Sociology

Aerospace Studies
American Studies
Military Science
Overseas Career Program

Note: A proposed college reorganization is charted later in this section.

COLLEGE OF ARTS AND SCIENCES

Academic Departments: 32 (see organization chart on preceding page).
Degree Programs: Bachelor of Arts (35 fields); Bachelor of Fine Arts; Bachelor of Music; Bachelor of Science (4 fields); Master of Arts (24 fields); Master of Fine Arts (4 fields); Master of Science (8 fields); Doctor of Philosophy (17 fields).

	Actual		Projected	
	1963-64	1968-69†	1972-73	1975-76
Student Majors (Fall):	*	3,785	5,410	6,745
Undergraduates	*	2,563	3,230	3,865
Graduates	*	1,222	2,180	2,880
Student Credit Hours (Fall)	102,542	156,783	204,410	203,150
Graduates (Degrees Awarded):				
Bachelors	383	831	1,210	1,500
Masters	155	360	590	810
Doctorate	3	37	130	175
Certificate	—	15	45	45
Faculty and Staff (FTE):	445	896	1,295	1,385
Faculty	414	788	1,085	1,155
Civil Service	31	75	135	145
Others‡	—	33	75	85

* Data not available.
† Data on graduates for 1967-68.
‡ Technical personnel.

The College has established an administrative subdivision to handle advising, and faculty members from various academic departments receive reductions in teaching load to permit them to spend a portion of their time in advising. These faculty members are trained for their work by the Associate Dean for Student Services. Though the ratio of students to advisors (1:400) is still far too high to enable advisors to give their advisees the kinds of assistance they need, all students are now able to secure responsible and informed advice on their programs and problems when they want it. In the fall of 1968, for the first time, each freshman and sophomore in the College had at least one appointment with a faculty member for academic advising.

Services to Other Colleges

The College has enlarged its efforts to assist other colleges within the University with their own programs. It has increased offerings in communications, quantitative reasoning, and world civilization that contribute, as part of the University core requirements, to the undergraduate education of all students. It has also increased its commitment to upper-division courses that serve special needs of other colleges, such as those in written communication, for students of business, and technical exposition, for students of engineering. It has supported the installation of the KOKUA Program, in which students are employed to make it possible for handicapped students to get a university education, and has collaborated with the College of Education in carrying out the recommendations of the Stiles Committee concerning improvements in the University programs to prepare teachers for the schools (discussed in Chapter 7).

Community Service

Outside the University, the College has made increasing efforts to offer programs and services of value to the community at large. In 1965 it committed itself to the support of summer institutes for teachers. In the same year it established the Council on the Humanities and increased support for festivals of the arts and poetry readings. The College has collaborated with the Division of Continuing Education in establishing a program of college-level education for men in the Polaris submarine crews, under contract with the United States Navy. College faculty undertake research assignments for the federal government and serve as consultants to such state agencies as the Department of Education.

Administration

Its expanded size and responsibilities have forced changes in the administration of the College. The principal change has been the organization of the dean's office along functional lines, with associate deans assigned special responsibilities for personnel and budget, curriculum, student services (particularly advising), and fiscal services. Although many faculty members have served on important College committees, for the past three years no faculty organization has participated directly in the administration of the College; but in November, 1968, the faculty voted for the adoption of a new College Senate which will soon be in operation.

Despite these changes, the rapid growth of the College and the University, the increasing imaginativeness of its faculty and the maturing outspokenness of its students make it necessary for the College regularly to evaluate the success with which it is carrying out its responsibilities. Are its instructional programs sufficiently responsive to the needs, interests and demands of its student body? Is its administrative organization flexible enough to allow it to support the resourceful proposals of its faculty as well as to meet its increasing and varied responsibilities within the University? Is it doing enough to fill its proper role within the state and nation? As it increases in size, is the College taking the necessary steps to assure that its primary functions—to disseminate knowledge and to advance understanding—are being carried out as well as possible? Finally, are its programs effective? It is on such issues that the discussion of the College's future has focused. Some of the answers to these questions underlie the College development plan.

The College and Its Clients: 1969-1975

The College of Arts and Sciences, like the University as a whole, can be viewed as an organization working with three principal groups: the University's students, undergraduate and graduate, who may benefit from the College's courses and programs; academic colleagues and peers, including the disciplines they represent, which may benefit from the research carried on and published by faculty members; and the community at large, which may likewise benefit from the services of the faculty. During the next seven years the College will improve and increase its contributions to each of the groups.

Undergraduate Curriculum

General Education The College seeks to provide its undergraduates with a comprehensive general education, in order to assure that each student develops: an appreciation of man's diverse cultural heritage; criteria for the assessment of value in different kinds of society; esthetic standards and a sense of beauty; knowledge of the individual self and its environment; and methods of seeking sound and meaningful judgments. To achieve these broad goals, the College has adopted for most of its students a somewhat more detailed set of course requirements than those of the University's general education core, described at the end of the preceding chapter. Most students in the College, except those in special degree programs like that leading to the Bachelor of Music, must meet *basic* requirements (commonly courses in English, speech-communication, history, health and physical education, a foreign language, and philosophy or mathematics) and take stipulated amounts of work in three areas: the humanities, social sciences and natural sciences.

While aware of objections raised against such a detailed set of requirements (some of the objections are similar to those that have been lodged against the University core), the College remains committed to the philosophy underlying general education requirements. Until entering students are proficient in skills now developed in the basic required courses, the present general education requirements will continue to apply to all students except those in special degree curricula and those participating in the University's experimental programs (as mentioned at the end of the preceding chapter on "The University's Response to Change"). However, the College plans to improve its program in general education, by:

1. Adding to the number of courses that will meet basic and areas requirements, from current and new departmental offerings, from new courses that draw from several disciplines (such as the integrated offerings in biology), and from interdisciplinary courses that might be taught by teams from different departments.
2. Encouraging student-devised courses which, though changing from year to year, will still fulfill basic or area requirements.
3. Encouraging in general education courses, for both basic and area requirements, use of material from and about the Hawaiian environment and community.
4. Improving instruction in general education courses by increased sectioning of large lecture courses; making available smaller classrooms and seminar space, as well as facilities for large lectures; making available increased audiovisual services, language laboratory facilities, teaching machines and other techniques for programmed instruction.
5. Expanding its advising services with personnel qualified and trained to help students choose courses of maximum interest and value to them.

While making these improvements, the College also plans to evaluate each of the courses now included under basic or area requirements, as well as those that comprise part of the University's core, to assure that each serves the purposes expected of it. The College will drop from its requirements or replace those courses that are not contributing usefully to the student's general education. In addition, the College will support the introduction, when warranted, of new degree programs that may not require students to complete the normal general education requirements.

At the same time, and especially when more adequate advising becomes available, the College plans to offer qualified students various plans for reaching the goals of general education. These plans will provide for: (1) a system of placement examinations to permit students entering the College who are well prepared in one or more subjects to be exempted from the related basic area requirements;

(2) increased opportunities for students to meet basic and area requirements by earning credit by examination; (3) a streamlined distribution requirement, under which a student entering the College with good preparation would divide a stated number of hours (say 50) among the humanities, social sciences and natural sciences, with maximum freedom of choice in selecting courses in these areas (excluding from the fulfilling of general education requirements only those courses dealing with more or less technical procedures, such as stage-lighting and radio or television broadcasting); (4) substitution of the University core requirements for the Arts and Sciences requirements, with students encouraged to earn credit by examination in as many fields as they can.

Review and Scheduling of Academic Major Curricula

Academic majors are planned and administered within the several departments of the College. The College plans to encourage departments constantly to review the suitability of their major requirements for undergraduate degrees, as they already do for advanced degrees. Though their programs may not necessarily change, several departments—notably some of the sciences and some of the foreign languages—hope to design their academic year and Summer Session offerings so that students can readily pursue their programs in year-round study. The work required of the student who seeks to gain competence in these fields often must include summer study, to assure (as in some sciences) that he takes the courses in proper succession, and to provide (as is desirable in language study) that no lapses in time retard his rate of progress. The development of such year-round programs, of course, depends on the Summer Session's ability to offer courses with relatively small enrollments of such majors (a point discussed in Chapter 21).

Concentration in Ethnic Studies

On the continental United States, Black students are demanding that universities offer programs of study in Black culture. In Hawaii several ethnic groups—Asian, Hawaiian and Afro-American in particular—are today asking the College to include in its curricula programs of concentration in the literature, history, sociology and culture of these groups. The State Committee on the Preservation and Study of Hawaiian Language, Art and Culture has proposed that a baccalaureate curriculum in Hawaiian studies be established, bridging Hawaiian history, language and literature, arts and music, and the cultural anthropology of Pacific peoples.

The College of Arts and Sciences recognizes that a coordinated approach to the study of cultures and sub-cultures within the United States may offer a stimulating and meaningful field of concentration. Therefore, the College proposes to develop a program in ethnic studies, designed to enable students to study in some detail a culture of their choice—Hawaiian, Polynesian, Asian or Black, for example. The concentration would most probably be inter-disciplinary—one manifestation of the desire to break down departmental barriers that too often divide higher education.

The "Non-Major" Degree and the Sub-College Program

As one major effort to lower these barriers between disciplines and to encourage students to combine work in several departments to meet their special interests, the College supports the development of the so-called non-major degree mentioned in the preceding chapter. This degree plan will also promote study in small seminar or tutorial sessions, while encouraging students to experiment with various courses and instructional techniques to whatever extent the individual student and his advisor agree is desirable.

Furthermore, in the spring of 1968 the Dean of the College invited faculty members to submit proposals for complete sub-colleges under the College of Arts and Sciences—units that would develop totally new undergraduate curricula, to be offered to selected qualified students. The College is pleased by the response to the Dean's invitation; two well-developed proposals for sub-colleges are actively under consideration. Clearly the imaginations of several faculty members have been stimulated to new conceptions of what instruction in the liberal arts can be. The College proposes to continue this type of search for new organizational designs, well-considered proposals which try to regroup areas and subjects of instruction into combinations not achievable under the present departmental organization. In such new conceptions may lie the principal hope for assuring that its programs offer educational experience significant for living in a world of rapid change.

Undergraduate Academic Advising

The College has made good progress with its advising procedures since 1964, but recognizes that these arrangements are still inadequate to the needs of students who have yet to choose a field of concentration, before they can be assigned to departmental advisors. The College will work toward reduction of the number of students assigned to each advisor, and will gradually develop a corps of qualified and well-trained advisors who can help students make the complex decisions required by increases in the number of options available to freshmen and sophomores. Some of these advisors will be faculty members serving half-time; others will be fulltime professionals. Only such a staff can handle the work caused by pressures toward earlier specialization which urge students to reach decisions about their professional careers, and can provide students help in choosing among the numerous programs and courses offered by the College.

Undergraduate Instruction

The Educational Process: The Student as Learner

The goal of university education continues to be that of producing changes in student-learners. Yet only the learner himself can alter his store of information, his attitudes and his skills. No book or lecture, however eloquent or profound, can in itself make these changes for him. Recent campus developments indicate a gratifying recognition that not all students learn in the same way, at the same rate, or for the same reasons. Such innovations as the broadened honors programs, the Johnson Hall program, the non-major plan, interdisciplinary courses and sub-college proposals acknowledge that the University's programs must be flexible enough to meet the needs of different individuals and their varying modes and styles of learning. But these adaptations still reach only a relatively few students. The College proposes to seek ways now to help all of its diverse body of students to learn more effectively. Clearly, teaching and learning often occur in the presence of one another, but the relationship is not fixed or arbitrary. Yet one strong and deeply-rooted tradition of the University is a "one-way" model of teaching and learning, which survives most clearly in the lecture method of instruction. The knowledge of the professor is viewed as being transmitted by means of the spoken and written word into the minds of the students. Failure is often regarded as a shortcoming of the student as a receiver, rather than of the professor as a source.

A more contemporary view of the communication process regards learning as an active behavior, a process in which the learner's responses serve as feedback to the source informing the latter whether what is transmitted is being accurately received and about adjustments the source ought to make in his message. This "two-way" view shifts much of the responsibility for success back to the source and makes interchange between professor and student a fundamental principle in the learning process.

Despite growing acceptance of this more realistic view of learning, implied support of the "one-way" model is widespread. Most University classrooms are constructed and equipped for the lecture method of instruction and are not very adaptable to other uses. The curriculum is designed to use the lecture as its standard vehicle. The College seeks alternatives and supplements to this single style of instruction, and will test the value of some alternative systems.

In judging results, planners should consider the effectiveness of a program in reaching its goals, not just its apparent economy. (An effective system might consist of one tutor-professor and one student working together, but the cost would be prohibitive. On the other hand, a low-cost system might be illustrated by a professor lecturing to thousands of students, but the measurable change in learning and behavior—the "effectiveness" of the program—might be minimal.) Whatever the system, there will be many variables, some more or less obvious and some hidden or otherwise unexpected. Following are some suggestions for discovering and experimenting with more effective ways to assure more successful learning.

Pilot Studies in Results of Instruction

It is relatively pointless to discuss the effectiveness of an instructional program unless the results obtained (what the student learns) can be compared with a predetermined statement of the results sought. If behavioral objectives can be established for even a limited number of courses, it will be possible to determine how well existing and new instructional methods attain these objectives.

Systems Analysis of Programs

Departments will be encouraged to subject their programs to systems analysis: to determine what steps are needed to accomplish the objectives of those programs, how the elements fit together in the learning experience, how students' work in the program is expected to progress, where students of differing abilities might enter and exit from the program, and where the efforts of different faculty members may best be used.

Flexibility of Class Scheduling; Alternatives to Lecture Method

University tradition provides that a student can earn one semester hour of credit by attending one 50-minute instructional period for one semester. Departments will be encouraged to develop some experimental teaching procedures which will depart from the fixed instruction hour/credit ratio and to determine what effect this change may have on student learning. Some flexibility is especially important if field work or community service is to be introduced in courses where it is relevant.

In revising the speech-communication course required in the University general education core, for example, the Department of Speech-Communication has provided about 12 hours of active, observable student participation, as compared with one hour under the previous system. Plans are under way to change the lecture portion of the required course so that large lectures are presented partly "live," partly on videotape. Many other such variations of the lecture method are possible.

Shifting Instructional Responsibility to Students

Students spend a great deal of time instructing one another informally in preparation for tests and projects. Ways will be sought to incorporate this behavior into the planned activities of regular courses, so that the amount of available instructional energy in these courses can be increased. In a decentralized course organization in which the instructor functions part of the time as manager for small groups of students who are instructing one another, there is much potential for increased learning.

Increasing Instructional Resources

Assistance will be sought from the Instructional Resources Service Center, and from other agencies, to determine how audio-visual resources (including films, television, and other materials) can best be used to help students learn. The Center will be invited, where possible, to help faculty members solve problems that may call for the use of audio-visual materials.

Improvement of Teaching

The aim of the College to encourage the student to assume greater responsibility for his own learning does not lessen the responsibility of the College and its faculty to improve teaching. Such improvement will not take place unless constantly encouraged and approved by the College and its departments. The College will undertake several interconnected activities in this direction.

First, it will make a systematic effort to determine much more precisely than has been done in the past what constitutes good teaching: what one means when one says that a particular course or instructor is "good." Good teaching, of course, may take many forms, but these may have several identifiable features in common. Even if they have little, the distinctive properties of each kind of teaching and teacher may be identified and publicized, so as to give new faculty members especially some examples to observe and an idea of goals to seek.

Second, the College will encourage all departments to gather evidence concerning the teaching ability and promise of every candidate for appointment to the faculty (as some departments now do) and to weigh such evidence heavily before recommending the applicant's appointment. At the same time, the College will encourage departments to give new faculty members every assistance in developing the skills they need in order to handle their courses effectively.

Third, the College will endeavor to assist departments and all faculty members who seek ways to evaluate their own teaching, whether through comments by students, examination of videotapes of their classes, planned measurement of what students are learning, or informal exchanges of classroom visits with colleagues. The faculty member, in short, will find it possible to see himself as his students see and react to him. Reliably gathered evidence handled responsibly through suitable procedures will weigh heavily in decisions concerning tenure and promotion.

Fourth, within each department that uses inexperienced young instructors or graduate assistants as teachers, the College will assist in developing programs to assure that these people are trained to carry out their duties well. These programs may include teaching assignments in which the neophyte is closely observed and carefully advised by an experienced, successful teacher.

Fifth, the College will seek especially to improve instruction in lower-division courses and courses designed for students not majoring in the field. Younger instructors will be given credit for effective teaching of lower-division courses, just as they are expected to meet a high standard for teaching advanced courses. Also, highly experienced professors will be encouraged to undertake the teaching of introductory courses, and will be provided with necessary assistance in such teaching. Furthermore, where large classes prevent effective teaching (though large classes are probably not without value in some lower-division courses), such classes will be reorganized where possible to make effective use of audio-visual aids, programmed instructional materials, and small discussion groups. Some of these items, particularly programmed materials, are time-consuming and expensive to develop, but once provided and approved they can be economical as well as effective. Where large classes are not suited to the subject matter and aims of the course, as in instruction in languages, classes must be reduced to the size best adapted to maximum learning.

During the next seven years, then, the College plans to commit a portion of its energies to seeing that improvements in teaching continue, particularly in undergraduate courses, and that faculty members receive support and encouragement in efforts to improve their work with students.

Research on Improving Instruction

The College also plans to support much needed research on the teaching-learning process. Faculty members wishing to do so will be encouraged to investigate instructional applications of modern technology, alternative class sizes for different kinds of learning, testing and grading procedures, the usefulness of learner-paced study, programmed materials, and other new instruments of education. Like research within the disciplines, such close study of teaching-learning processes is best centered in the departments that are doing the teaching, rather than in specially developed research institutes. Research in instruction is part of a department's regular function, and should be supported within the department by released time for faculty members who undertake it, secretarial and technical assistance, equipment, materials, space and library facilities. This support must be provided if effective research is to take place on ways of improving the teaching-learning process.

The research efforts of faculty—all this is to say—whether in their disciplines or in the teaching process—will be matter for serious and continuing interest on the part of chairman and college administration alike, not simply an item in the dossier to be noted only when tenure or promotion are to be decided.

Graduate Curricula and Research

A large number of the courses offered by departments in the College are intended primarily for candidates for higher degrees in the Graduate Division. As the number of graduate students increases, and with it the ratio of graduate students to undergraduates, the College foresees that an increasing proportion of its student credit hours will be in graduate courses. While refusing to neglect its commitment to the teaching of undergraduates, the College plans to increase the number of graduate courses it offers, and in the appointment of new faculty will keep in mind the need to secure persons who can effectively teach graduate as well as undergraduate students.

Several departments, including Economics, English, Mathematics and Speech-Communication, are considering the introduction of programs leading to the doctorate. It is thus anticipated that new Ph.D. programs will be inaugurated in the next seven years, though not at the rate experienced under Plan I, applying the criteria for moving into doctoral curricula specified below in Chapter 17 on the Graduate Division.

Contributions to the Disciplines The College will continue to emphasize the discovery of new knowledge and the dissemination of that knowledge through appropriate publications. Each faculty member will receive more carefully organized assistance than has been offered in the past. Faculty members will be invited to draft their own "academic development plans": statements of the goals they seek in their particular efforts at advancing knowledge, indications of the kinds of support they will need in carrying out these plans, statements of the kind of testing of their ideas they would like to undertake—for example, presenting these ideas at seminars or professional meetings. Clear procedures will be outlined for requesting assistance, if such should be needed to publish their work. Departments will expect faculty to evaluate their progress toward realizing these goals, and will offer whatever assistance they can in the professional self-advancement of their members, including active support of requests for financial aids necessary to faculty members' work

Service to the Community

The College of Arts and Sciences affirms the policy (set forth above in Chapter 4 on "The University's Response to Change") that it is desirable to encourage faculty members to become involved in work on the problems of the community at large. It is important for them to feel free to advise community leaders on current social, cultural and political problems, as well as to present to the community the results of their professional study of such problems. Moreover, the College regards it to be a legitimate academic enterprise for faculty and students, working with other institutions and agencies, to make a contribution to the improvement of society.

The College is anxious to see faculty members engaged with problems of the community, partly because current expressions of dissent among students reveal that many believe that their education is not equipping them adequately to cope with the difficulties they encounter in today's world. The criticism has already prompted some members of the College to involve themselves in the day-to-day activities of our society, so that they can revise what is to be taught in the College to assure that it better prepares graduates for the everyday world. Many members of the College are convinced that its intellectual and scholarly ideals will be enhanced and renewed, not compromised, if these ideals are critically disseminated and tested in the total community. By such testing of their ideas, faculty and students can assure that the College's courses and programs have the validity and the human concern—in today's language called the "relevance"—that students seek in their education.

As some of the better trained members of their community, moreover, faculty and students should be able to accept responsibilities in the community quite apart from the possible relevance of community service to their academic work. Members of the College can follow several routes to achieve a more active partnership in the community; the preferred routes cannot be specified in detail here. While the College will continue to respect the preferences of students and faculty who elect to continue in their accustomed roles and not to involve themselves in community affairs, it is also prepared to offer appropriate recognition to those who fill important roles in the community with distinction, along with their roles in the University. In many instances these rewards should be commensurate with those given to persons who choose to work exclusively within the University or largely within the circle of professional peers.

A faculty-student committee should be established in the near future to formulate guidelines concerning the role of faculty and students within the community. It is possible to mention here, though only sketchily, some of the activities that the committee might examine, and to indicate a few of the problems encountered when one tries to set up a scale of rewards. Faculty members can participate in community service, broadly speaking, in one of three roles: those of professional scholar, specialist, and citizen. As a scholar, the faculty member may provide information or give advice on projects of general concern—for example, by studies of social organization, analyses of economic conditions in a given area of the state, efforts at harnessing natural resources or conserving these resources for the good of the community, etc. Such professional assistance can sometime lead to the discovery of new and sounder knowledge applicable to situations or problems other than the particular local ones being studied. In this role, the faculty member is acting as a scholar whose sources of information are not so much the library and the laboratory as the living community and its physical and biological environment. Participation of this sort is entirely consistent with established concepts of the scholar's profession and entitles him to the same rewards that are given to persons who work chiefly in a library or a laboratory.

In the role of specialist (the roles of scholar and specialist may overlap), the faculty member brings his distinctive expertise to bear on some specific but rather occasional need in the community, as in advising on a particular tax policy, helping to train Peace Corps volunteers, writing newspaper criticisms of art or theatre, appearing on a ETV panel, leading workshops for teachers in service, assisting in the control of air pollution, etc., with little expectation that the discovery of new knowledge and publication will result. The kind of encouragement and reward due to service in the role of specialist—a role many faculty members already fill with some frequency—is hard to define but for that reason deserves careful study, to be sure that appropriate rewards are indeed offered.

While no special academic recognition is due for service the faculty member performs as a citizen, outside of his field of specialization—as in advising a community group, assisting the campaign of a candidate for public office, or holding office himself—neither should the faculty member be penalized for the time he gives of his private life to this kind of service.

Students may participate in community service either outside or within the academic curriculum, and the encouragement and rewards due to these kinds of service may be as hard to decide as those due to service on the part of faculty. Extra-curricular activities include such efforts as tutoring, volunteer social work, participation in political or social action groups, and so on. These activities are familiar on the Manoa Campus as well as elsewhere today. Less familiar, but of no less value to the community or to the students, are projects undertaken as part of an academic program. Community activity within the framework of courses has been encouraged at Manoa, as in "Operation Outreach," involving individual student work in the community, which has for a few years been an important part of course work in "Man and Society." The inclusion of community service as a part of the program leading to a degree is not now practiced in the College, as it sometimes is in professional schools, but the proposed College faculty-student committee should explore the possibility that such service might be made a recognized part of some students' education, where it helps them attain the objectives of the curriculum they have chosen.

Whatever guidelines the committee adopts, it seems clear that the College should identify and support much broader kinds of service in the urban, state and even national community than have been explicitly recognized in the past. "It is chiefly through the continued effort to be relevant," says John W. Gardner, "that an institution renews itself, but it is a difficult effort to make in placid times. Any institution that cares about renewal will seize the moment of crisis [such as the present] as the appropriate instant to break the settled mould of life and create fresh patterns."

Not all community service is problem-oriented. The humanities departments play an important role in enriching the cultural life of the community—as through the plays, concerts, recitals and exhibitions of the College's faculty and students. A current innovation to expand this type of activity merits special notice. This spring the College is bringing to Hawaii a well-known poet, who will give readings on campus and around the state, and will meet with faculty members, students and others interested in imaginative writing. This will be the first in a regular series of such visits by scholars, writers and performers in the arts by means of which the College hopes to enliven both campus and community.

Administrative Organization

For the encouragement of research within the particular disciplines, and for the offering of graduate degree programs, the present administrative organization of the College—an array of departments comprising faculty members with similar interests who can assist and stimulate each other's work and can devise coherent instructional offerings in those disciplines—is of unquestionable value.

At the same time, organizing the College so that all 33 departments report to a single dean for virtually all purposes has proved unwieldy. Under this organization, it is difficult to assemble new programs that cut across departmental lines, though such programs seem to be increasingly needed by students preparing for contemporary society. In the next few years, therefore, opportunity will be given for the development of new kinds of curricular units which may not be easily connected to existing departments. Tentative gropings toward these new curricular units are already being carried out by the College in multidisciplinary and interdisciplinary courses, the proposed development of schools and sub-colleges, and so on. A more flexible organizational plan for the College will be developed, based on experience to date with these new units, trying to anticipate some of the future needs of society. During the next seven years, the College will undertake the following organizational changes to support its present programs more effectively and to further encourage new programs:

1. *Administrative reorganization into divisions.* These could include Humanities, Social Sciences, Natural Sciences, and "Special Programs." Although these divisions are to be designed primarily to improve communications in a large organization, they will also give special attention to developing new designs for undergraduate education, while their component departments continue to supervise graduate fields of study. Undergraduates throughout the College might be offered the choice of majoring in a large area instead of in a specialized discipline. The divisions could also make decisions about fields of study to be expanded or made more prominent, and about the further integration of existing departments.
2. *Encouragement of new interdisciplinary liaisons.* An example is the reorganizing of the biological sciences into a single unit. This new organization will not be committed to any single discipline in biology, but will offer a total program which focuses attention on the development and maintenance of the field as a whole. Specifically, it will emphasize developments in quantitative biology, maintaining and extending interactions between the molecular approach and more traditional areas of biology: botany, microbiology, zoology.
3. *The creation of schools to offer completely new curricula.* These might include a school of performing arts made up of faculty and courses in drama, music and dance; a school of international studies composed from European and Asian languages, history, sociology, religion, etc.; or a school of environmental studies, composed from architecture, landscape architecture, physical planning and urban design.
4. *A continuous search to develop academic organizations which directly reflect the needs of society.* The increase in urban populations and density, the resulting social and biological-ecological imbalances and stresses, including scenic spoliation, can only be resolved by interdisciplinary units with specific goals and adequate organizations to support the necessary teaching, research and community service. One example is a multidisciplinary unit conducting population studies which may emerge from the collaboration of the College and the East-West Center, as discussed in Chapter 27; another example is the Pacific Urban Studies and Planning Program, briefly noted in Chapter 4.
5. *An increase in the variety of degrees offered by the College.* New degrees will be designed to suit special needs of the society which the graduate will enter. Implicit in multiple degrees are corresponding curricula and curriculum-planning committees for each degree.

The new organizational arrangement would help existing departments to examine possible liaisons with other departments, interconnections to be developed through special programs, interdisciplinary courses and collaborative research. Steps will be taken to assure that such "communal" relations can be initiated, tightened, relaxed or abandoned altogether as the needs of society and new knowledge about the subject areas subsumed in the College dictate. The organization will positively assist the development of new educational units suited to serve the specific needs of society as they are identified.

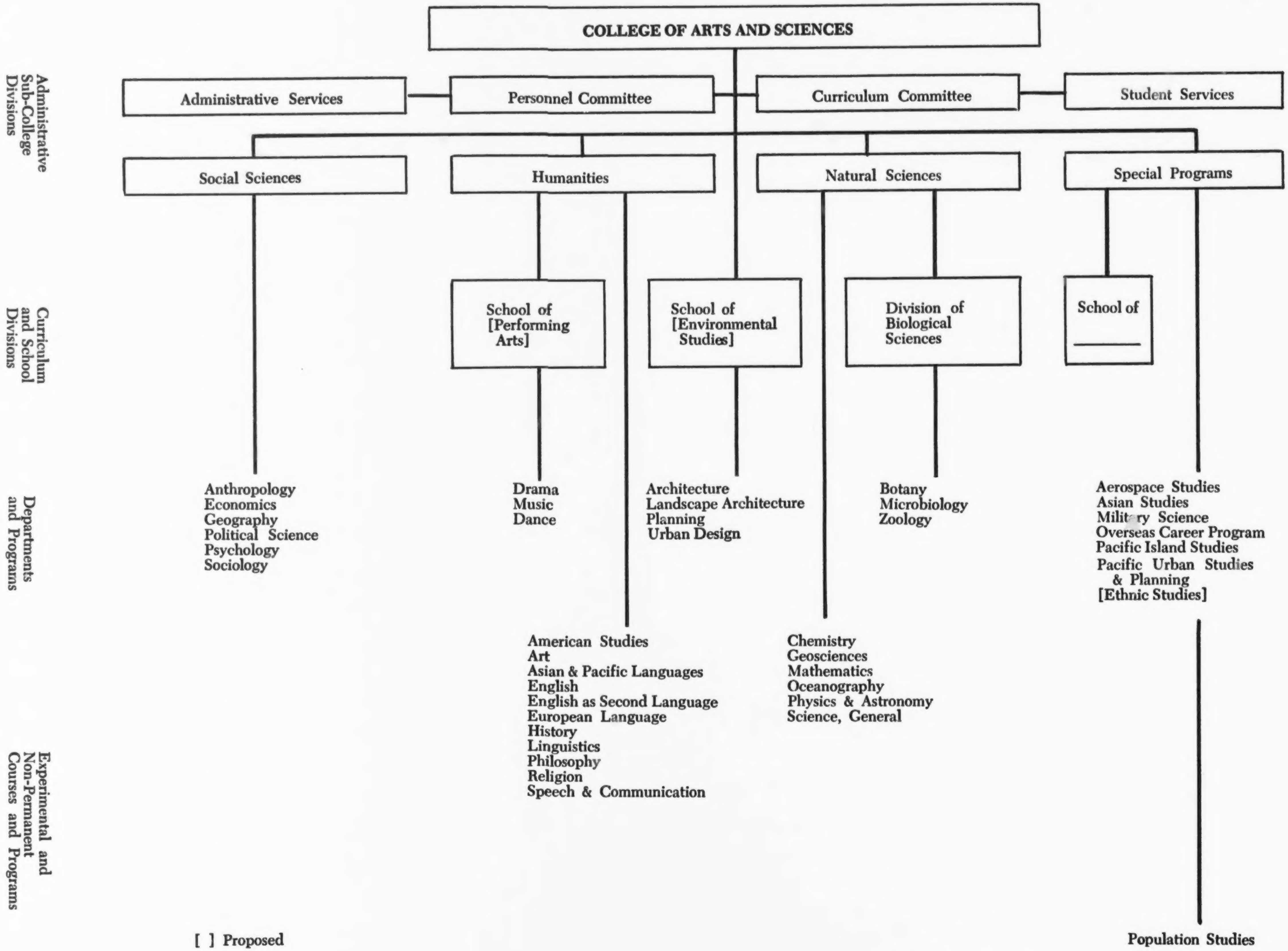
(See chart at end of this chapter, for a suggestion of how the College might be reorganized.)

Developments Under Academic Development Plan I

1. Improved recruitment of faculty members at all ranks, with resulting increase in the quality of College faculty.
2. New bachelor's degree programs in architecture, biology, the classics; new master's in American studies, architecture, astronomy, geosciences and geodesy, Spanish.
3. New Ph.D. programs: astronomy, drama and theatre, geography, linguistics, oceanography, sociology.
4. Introduction of the non-major degree (Bachelor of Liberal Studies).
5. Improvements in the advising of freshmen and sophomores.
6. Increased commitment to educating teachers and supporting programs on the arts and humanities in the state.
7. Reorganization of the College administrative staff.
8. Invitation of plans for sub-colleges.

Projected Developments Under Plan II

1. Increase flexibility and variety of undergraduate programs, both in general education and in major fields of study.
2. Reorganize the College to provide greater flexibility and the capability of introducing needed new programs.
3. Establish sub-colleges for special undergraduate programs within the College.
4. Further improve academic advising.
5. Increase attention to the ways in which students learn, adjustment of instructional techniques to suit what is discovered about learning.
6. Increase assistance to faculty members in improvement of teaching skill and research productivity.
7. Encourage community service by faculty and students.
8. Offer new doctoral programs, as justified.


COLLEGE OF ARTS AND SCIENCES
Administrative Sub-College Divisions
Administrative Services
Personnel Committee
Curriculum Committee
Student Services
Social Sciences
Humanities
Natural Sciences
Special Programs
Curriculum and School Divisions
School of [Performing Arts]
School of [Environmental Studies]
Division of Biological Sciences
School of ______
Departments and Programs
Anthropology
Economics
Geography
Political Science
Psychology
Sociology
Drama
Music
Dance
Architecture
Landscape Architecture
Planning
Urban Design
Botany
Microbiology
Zoology
Aerospace Studies
Asian Studies
Military Science
Overseas Career Program
Pacific Island Studies
Pacific Urban Studies & Planning
[Ethnic Studies]
American Studies
Art
Asian & Pacific Languages
English
English as Second Language
European Language
History
Linguistics
Philosophy
Religion
Speech & Communication
Chemistry
Geosciences
Mathematics
Oceanography
Physics & Astronomy
Science, General
Experimental and Non-Permanent Courses and Programs
Population Studies
[ ] Proposed

Chapter 6: COLLEGE OF BUSINESS ADMINISTRATION

Purposes and Objectives

The overall purpose of the College of Business Administration is to provide instruction, research and service in the areas of business administration and other business functions important to all organized operations—whether instituted to make profits or not—which manage men, materials, money and authority. It is furthermore the purpose of the College to recognize and serve the unique geographical, international, and industrial or trade aspects of the economy of the State of Hawaii.

To achieve these purposes, the College has four particular objectives: (1) through its undergraduate and graduate instructional programs, to prepare students for professional careers in administration and functional areas of business, industry, trade and related institutional or organizational complexes; (2) through research, to enhance and increase basic knowledge in business and administrative disciplines and to apply this knowledge toward solutions of problems in business, industrial society, and the environment which affects them; (3) through courses, seminars, conferences, and other available media and resources, to maintain and expand programs of continuing education and service to the business community in Hawaii and the Asian-Pacific area; (4) through courses and participation in interdisciplinary exchanges, to serve students in other colleges of the University as their educational programs may require.

Instructional Programs

Undergraduate Instruction

The continuing explosion of knowledge requires unceasing attention to the liberal arts orientation now and for the future in the lower division courses. Upper division courses must continue to reflect the complexity and diversity of the business and administrative disciplines. These courses will provide the greater part of the professional training in the students' program. For the next several years, there will also be an increasing emphasis on the areas of quantitative analysis, computer applications and behavioral science. Constant review of the curriculum will help assure that the academic program is alert to the specialized needs of the student body of the College.

Graduate Instruction

The Master of Business Administration Program is well established but it will be strengthened to qualify for accreditation by the American Association of Collegiate Schools of Business, which accredited the baccalaureate program of the College in 1967. The MBA curriculum will be organized to meet the capabilities and educational backgrounds of all qualified candidates regardless of their baccalaureate degree. Standards for the program on the Manoa Campus will continue to be applied to programs off-campus (as at present in Tokyo on a self-supporting contract with the U. S. Air Force at Tachikawa). Overseas programs, such as the one in Tokyo, will provide opportunity for members of the faculty to expand their knowledge and courses in international administration.

The aspiration to excellence of the University, as well as its geographical location, point to the desirability of offering a doctoral program in business administration. The College will work toward this goal, expecting to consider the establishment of a doctoral degree as an objective to be reached by 1975. It will concentrate on those areas where it can develop enough qualified faculty, programs and supporting library and other facilities to permit a sound offering.

Research

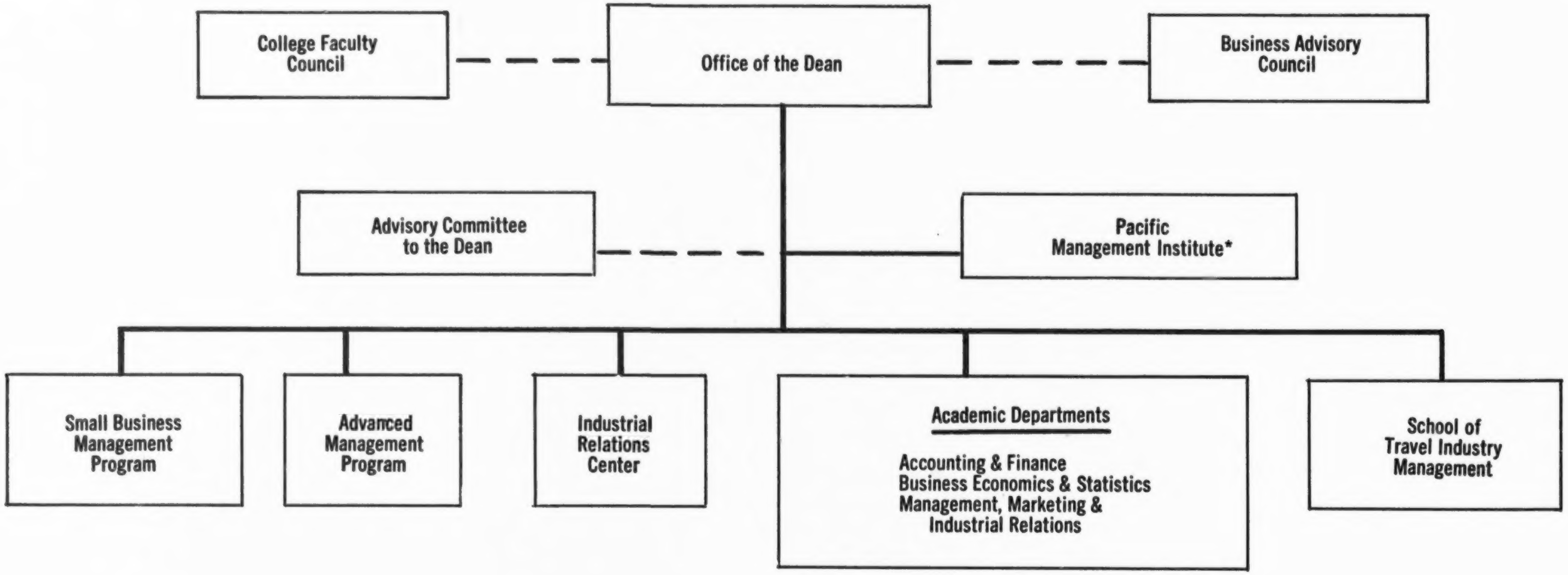
Basic and applied research in business administration must be further strengthened and increased. To aid this development, the College will establish a research institute, which will sponsor seminars and conferences, as well as research projects. Institute programs will be particularly concerned with contrasting management ideas and practices in the wide range of cultural and political backgrounds found in the nations of the Pacific Basin. It is anticipated that some research projects will be concerned with local developments in Hawaii; others will be directed to aspects of Hawaii's increasing participation in international commerce; still other studies will concentrate on management experience in other countries, or make international and cross-cultural analyses.

Continuing Education and Community Service

The College will continue to supplement its traditional undergraduate and graduate programs by expanding its services through its offerings of special seminars, conferences and training programs. These programs will be designed to meet current interests and needs. Present examples of such programs are:

1. The six-week in-residence Advanced Management Program offered in cooperation with the Harvard Business School. A similar program designed especially for East-West management concepts and practices is being developed by the College faculty.

COLLEGE OF BUSINESS ADMINISTRATION


College Faculty Council
Office of the Dean
Business Advisory Council
Advisory Committee to the Dean
Pacific Management Institute*
Small Business Management Program
Advanced Management Program
Industrial Relations Center
Academic Departments
Accounting & Finance
Business Economics & Statistics
Management, Marketing & Industrial Relations
School of Travel Industry Management

*Proposed

COLLEGE OF BUSINESS ADMINISTRATION

Academic Departments: Accounting & Finance; Business Economics & Statistics; Management, Marketing & Industrial Relations; and the School of Travel Industry Management.

Special Programs: Advanced Management Program, Small Business Management Program, Industrial Relations Center.

Degree Programs: Bachelor of Business Administration; Master of Business Administration; Doctor of Business Administration (projected).

	Actual		Projected	
	1963-64	1968-69*	1972-73	1975-76
Student Majors (Fall):	1,228	1,729	2,890	3,075
Undergraduates	1,228	1,508	2,450	2,490
Graduates	—	221	440	585
Student Credit Hours (Fall)	10,468	17,548	32,735	34,245
Graduates (Degrees Awarded):				
Bachelors	129	347	515	640
Masters	8	55	135	205
Faculty and Staff (FTE)	39	79	205	210
Faculty	36	67	170	175
Civil Service	3	12	35	35

* Data on graduates for 1967-68.

2. The Small Business Management Program designed to serve the needs of owners or managers of small enterprises and units of larger enterprises.
3. Marketing and Sales Symposiums, the Pacific Institute of Transportation and other conferences of relatively short duration specially designed for particular fields or professional groups.

The Industrial Relations Center

The Industrial Relations Center was established in 1948 to promote a better understanding of labor management techniques, problems and policies through public lectures, conferences and discussion groups. The Center maintains a library devoted to the subject of labor management relations, which is a research tool essential to study in the field.

A Labor-Management Education Program was created in 1965 to provide basic leadership training for management and labor. The program includes general and special courses, one-day and week-end institutes, conferences and staff training programs. The program also offers its services to high school teachers through its Modern Labor Course, and to the broader community through seminars on community issues and problems, utilizing funds from the Higher Education Act of 1965. The Center will develop its programs in conjunction with the instructional and research objectives of the College previously outlined. As the development proceeds and the Center grows, it may be advantageous to establish it as a School.

Service to the University

The College of Business Administration recognizes its obligation to offer instruction to qualified students in the University at large, as well as those enrolled in its curricula. To this end, the College will:

1. Widen its scope so as to serve all units of the University whose students require a management or administrative emphasis in their programs.
2. Structure its academic offerings to meet the needs of undergraduate and graduate students from non-business areas whenever these students may be best served by enrolling in courses offered by the College.

New Emphases

The programs described above include a continuing emphasis on the traditional and functional areas of business and managerial (administrative) disciplines. Between now and 1970, appropriate new emphases within these areas will include:

Computer Application

Students and the business community alike must be kept informed about the developments in the field of computers and be given the opportunity to learn their uses. Additional courses will be offered in both degree and non-degree programs. Such courses will, of course, be coordinated with the services of the Information Sciences Program and the Computer Center.

International Business

More attention is being given to international business in universities throughout the world, and Hawaii's location and developing interest in international trade make it a major emphasis for the College. New courses in the undergraduate and graduate curriculum will focus on international aspects as an added dimension to the basic functional areas of accounting, finance, management, marketing, and industrial relations. The College will offer programs overseas to individuals and groups wherever feasible, e.g., the M.B.A. in Japan. It will enter into contractual relationships with universities in foreign countries where such relationships will serve the needs of undergraduate and graduate students from Hawaii. Loan or exchange of faculty members will make available their services and advice to foreign universities desiring to develop graduate programs in business administration; these exchanges will further the development of the international business program and the research efforts of the College.

Administrative Process

The College will expand the scope of its present curriculum, utilizing experience gained from the interdepartmental course on the general theory of administration now offered for students not only in business administration, but also in political science, social work, educational administration and public health, with the cooperation of faculty from those fields. Management or administration has not been finally adjudged to be all art, nor all science. The curriculum will continue to emphasize both aspects of the administrative or management process in all its offerings.

Courses at the undergraduate and graduate levels will stress the application of basic concepts to the institutions of government, schools, social work agencies, hospitals and other organizations in which, as stated earlier, activities require the management of men, moneys, materials and authority. Organization theory and decision theory in both quantitative and behavioral aspects will be stressed.

In addition, with the collaboration of the East-West Center and through the Small Business Management Programs, the Labor-Management Education Program, and the Advanced Management Program, the College will assist in developing managers or administrators who can understand and work effectively with nationals of the United States and other countries, particularly those in the Pacific and adjacent Asia.

Faculty Development

The problem of student-teacher ratio must be reviewed. The present ratio, now 29 to 1, is in some areas of the curriculum incompatible with the subject matter and mode of instruction. New appointments to the faculty will be made in accordance with the needs of program development as revealed in studies now being conducted.

The School of Travel Industry Management

Establishment of the School of Travel Industry Management in 1967 reflected awareness of the fact that tourism and the travel-related trades and industries are jointly the largest single source of commercially generated income to the State of Hawaii.

To strengthen its leadership role in this new field, the School will integrate its academic and internship programs over the entire four and one-half years required for its Bachelor's degree. On this foundation a new Master's degree program will be designed. This integration will continue to be correlated with the courses, appropriate to different areas of academic emphasis, within the University general education core, the College of Business core and the other subjects in each student's individual curriculum. TIM research, publications and management development programs will be developed.

The School will work with other units in the University, the East-West Center, and the tourism and travel industry to achieve its goal of quality education for the preparation of managerial and professional talents which the above objectives are designed to make possible. In the same spirit, it will continue to cooperate with the community colleges, the Department of Education, and the community at large.

Developments Under Academic Development Plan I

1. Accreditation of undergraduate program by American Association of Collegiate Schools of Business in 1967.
2. Establishment of M.B.A. program in Japan.
3. Creation of the School of Travel Industry Management.
4. Consolidation of eight departments into three departments and one school.

Projected Developments Under Plan II

1. Accreditation of M.B.A. program.
2. Establishment of doctoral program.
3. Creation of a business administration research institute.
4. New emphasis on computer applications, international business programs and the administrative process.
5. Selective improvement of student-faculty ratio.

Chapter 7: COLLEGE OF EDUCATION

Purposes and Objectives

One of the University's major goals is to bring leadership to the task of meeting the educational needs of the people. To help achieve this goal, the College concentrates on the preparation and development of competent teachers and on the provision of leadership within the professional community for the improvement of education, public and private, from kindergarten through high school and institutions of higher learning. Predominantly concerned with instruction as conducted in the schools, this leadership must make education relevant to the central problems of our time.

The College of Education will continue to give attention to the art and science of instruction and increasingly to the social and esthetic purposes for which educational technology can be effectively used. More precisely, educational leadership will be exercised and manifested in these ways: (1) in quality preparation of teachers; (2) ordered and illuminating in-service experience for teachers and other educational personnel; (3) informed service to the schools and the community for understanding educational issues; (4) development of programs and demonstration of materials and methods; (5) basic and applied research and development concerning problems of education.

Related to its programs of teacher preparation are some less well-known responsibilities, such as providing the physical education courses required of most University students for graduation, presenting courses in their subject field for teachers of physical education, health, and industrial arts, and offering a B.S. in Recreation. Except for the physical education activity courses and some skills courses in industrial arts, the curriculum of the College is made up of upper division and graduate courses in education. All freshmen and sophomores intending to become teachers are enrolled in the College of Arts and Sciences, except those in home economics and agriculture, who are enrolled in the College of Tropical Agriculture. Typically, students are admitted to the College of Education at the end of the sophomore year, although some may enter as seniors or even as possessors of baccalaureate degrees.

Instructional Program

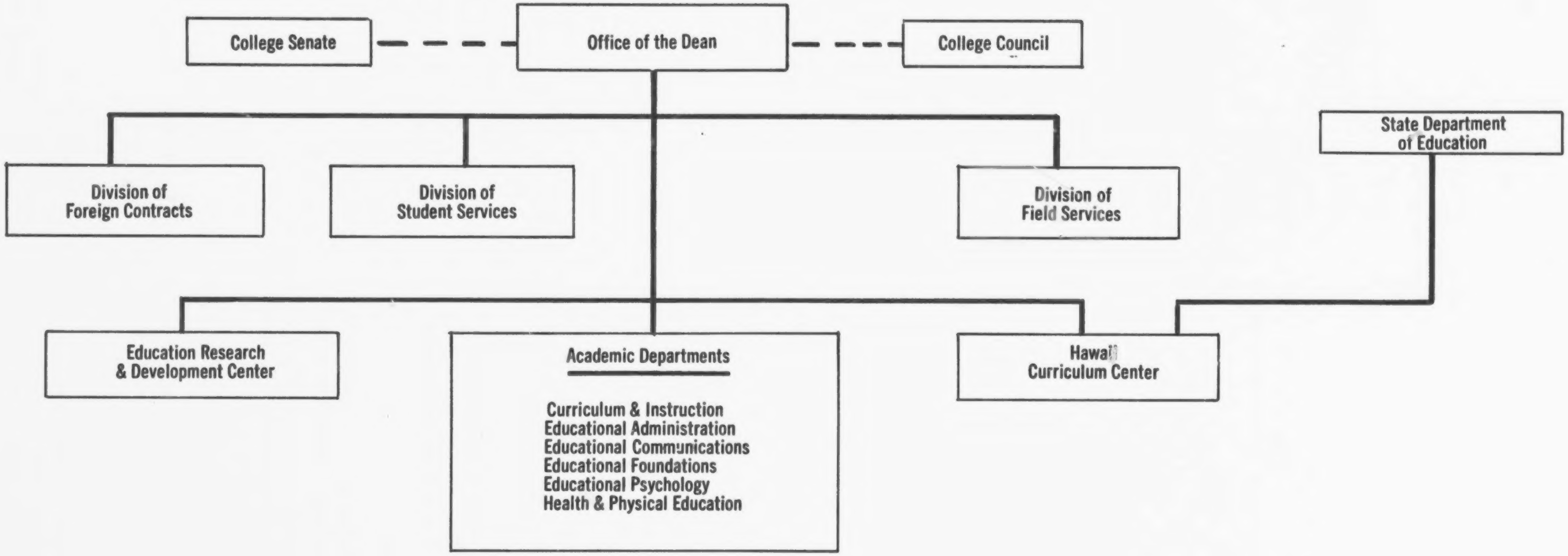
To review all programs for both pre-service and in-service preparation of teachers, a University Council on Teacher Education, with faculty members from all colleges involved in teacher education, two students in education, plus representatives from the State Department of Education, was appointed by the President of the University in 1966. Teacher education committees, including professors from appropriate academic disciplines and curriculum specialists from both the College of Education and the State Department of Education, have been constituted for each of the subject fields taught in the schools. These committees recommend new programs and changes in existing programs for the preparation of teachers; the recommendations are then reviewed by the Council and the College of Education Senate and the dean. In general, the College of Arts and Sciences provides the background of liberal studies for all teachers and the academic preparation of most of them, while the College of Education provides professional education courses and supervised student teaching. These professional experiences focused on educational practices will achieve further relevance by being closely linked with problems of human life in the changing world.

Pre-Service Teacher Preparation

The State Department of Education annually appoints approximately 1,500 new teachers, 60 per cent in the elementary grades. If Hawaii is to "do its part to prepare the teachers to staff the state and national program of education" (Lindley Stiles, *Report on Teacher Utilization in Hawaii,* 1967), the University's current output of approximately 500 teachers a year needs to be increased markedly. Within the projected College enrollment of 4,130 students for 1975-76, a proper balance of graduates and undergraduates will provide for the graduation of 1,000 new teachers annually.

The current pre-service teacher preparation program is a five-year integrated program including a strong liberal arts core and an academic major required of all students. The professional course sequence includes foundation courses in psychology, social foundations, and curriculum, a limited number of methods courses, and student teaching. Candidates are admitted after their sophomore year and pursue three more years of planned course work and student teaching. A Bachelor of Education (B.Ed.) degree is conferred at the end of approximately four years, when the State Department of Education grants a provisional teaching certificate to students recommended by the College. The "fifth year" may be completed in full-time study or part-time in conjunction with teaching. At the completion of the full five years' work, a Five-Year Diploma or (for those who qualify and are admitted to the Graduate Division) a Master

COLLEGE OF EDUCATION


College Senate
Office of the Dean
College Council
State Department of Education
Division of Foreign Contracts
Division of Student Services
Division of Field Services
Education Research & Development Center
Academic Departments
Curriculum & Instruction
Educational Administration
Educational Communications
Educational Foundations
Educational Psychology
Health & Physical Education
Hawaii Curriculum Center

COLLEGE OF EDUCATION

Academic Departments: Curriculum and Instruction; Educational Administration; Educational Communications; Educational Foundations; Educational Psychology; Health and Physical Education.

Degree Programs:

Existing: Bachelor of Education, Bachelor of Science in Recreation Leadership, Master of Education, Doctor of Philosophy in Educational Psychology.

Projected: Master of Science in Recreation Leadership and Physical Education; Doctor of Philosophy (additional fields); Doctor of Education; Education Specialist (intermediate between master's and doctorate).

	Actual		Projected	
	1963-64	1968-69[*]	1972-73	1975-76
Student Majors (Fall):	2,379	1,576	3,310	4,130
Undergraduates	1,817	1,054[†]	2,110	2,540
Graduate Students:				
Degree Candidates	269	306	695	920
Five-year and CPC Students	293	216	505	670
Student Credit Hours (Fall)	14,480	16,550	29,490	35,970
Graduates (Degrees Awarded):				
Bachelors	289	382	775	960
Classified Prof. Cert.	—	60	200	200
Five-year Diploma	184	260	365	510
Masters	67	185	430	545
Doctorate	—	—	25	40
Faculty and Staff (FTE):	149	171	395	475
Faculty	64	79	180	225
Civil Service	7	14	30	40
Other Personnel:				
Foreign Contracts	14	15	15	20
Educ. Res. and Dev. Ctr.[‡]	7	8	45	70
Hawaii Curriculum Ctr.	57	55	60	65

[*] Data on graduates for 1967-68.

[†] Freshmen and sophomores transferred to Arts and Sciences in 1967.

[‡] General and federal funds.

of Education degree is conferred, and the State Department of Education grants the Professional Certificate. Holders of baccalaureate degrees in fields other than education may earn a teaching certificate through a fifth year of work (occasionally more time is needed to make up deficiencies) in the Classified Professional Certificate Program of the University.

In-Service Teacher Education

The expansion of knowledge which peculiarly characterizes this period of history demands that the in-service education of teachers be a career-long program. Graduate degree and diploma programs constitute an important part of that continuing education, but many teachers cannot or choose not to pursue degree programs.

The Teacher Education Committees and the University Council on Teacher Education are recommending programs of courses, workshops and institutes to provide coherency for in-service education beyond the fifth year or master's degree. The programs will be used by school principals to advise their teachers in selecting courses which will improve their teaching performance and advance them in the Department of Education salary scales. The approved five-year programs will be guides for those teachers who have not yet earned professional certification.

To overcome the geographical isolation of many teachers in the state, the continuing education program must extend beyond the Manoa Campus to rural Oahu and the neighbor islands. In addition to institutes, workshops and courses offered in extension through the Division of Continuing Education, the College will make full use of the in-service programming of the Hawaii Educational Television Network to extend educational opportunities to all the teachers of the state.

Master of Education

The stimulus of the State Department of Education incentive salary plan and the demand for specialists in administration, counseling, school psychology, curriculum and supervision have greatly increased the number of candidates for Master of Education degrees in the five instructional departments which offer graduate programs—Curriculum and Instruction, Educational Administration, Educational Communications, Educational Foundations and Educational Psychology. This expansion will continue throughout the period of this Plan, and the College will staff itself to present more graduate courses.

Administrative Intern Program

The Department of Educational Administration conducts a non-degree, one-semester graduate program for preparing prospective principals and vice-principals for service in the State Department of Education. As the state's school expansion begins to stabilize, the program will diminish from the present 30 interns per semester to a somewhat smaller number, freeing departmental resources for other programs.

Education Specialist

Although many teachers consider the M.Ed. a terminal degree, expansion of knowledge and the growing complexity of the educational enterprise make continuing in-service education a necessity. As a program intermediate between the master's degree and the doctor's, the College proposes a new degree of Education Specialist. Such a program will provide more intensive specialization than the recommended programs described under In-Service Teacher Education (above) for continued in-service teacher education beyond the master's degree. It will also prepare specialists for various administrative, supervisory and curriculum development positions. The more demanding doctoral programs designed to produce researchers, professors, administrators and supervisors will not produce enough staff specialists in the foreseeable future to satisfy the needs of the schools.

Ph.D. and Ed.D.

The Department of Educational Psychology currently offers the Ph.D. degree, the only doctorate granted by the College. Administrators, research workers and college professors of education must be professionally prepared by doctoral programs. Hawaii's cross-cultural community and location make it desirable to offer additional doctoral degrees, drawing upon some of the strengths of other departments of the University to prepare specialists in such fields as international education, sociology and anthropology of education, and comparative education, as well as producing the doctorate holders needed for Hawaii's school and college teaching, administrative and research positions.

The 1975-76 projections for doctoral work include the extension of Ph.D. and Ed.D. programs in accord with the University's principle of "selective excellence." As at other large universities, the Ed.D. will be the professional degree designed to prepare leaders for administration, supervision, instruction and operational research. The Ph.D. will prepare college professors and research specialists in education. Continued development of research programs in the Education Research and Development Center (EDRAD) and the Hawaii Curriculum Center, as well as in other research projects of the College, will reinforce doctoral programs, provide opportunities for financial support of graduate students, and necessitate doctoral programs to attract the superior graduate assistants essential for sustaining research projects.

B.S. in Recreation Administration

The increase in urbanization, population, life span and leisure time have intensified the demand for community recreation leaders. By 1975-76 the Department of Health and Physical Education (HPE) will double its annual graduates from 10 to 20 in the program leading to the Bachelor of Science in Recreation Administration.

M.S. in Recreation Administration and Physical Education

The department plans to develop and offer two master of science programs: one in physical education, to prepare graduates to conduct research in exercise fitness, sports medicine, motor learning and behavior, and measurement; and one in recreation, to prepare graduates for advanced recreational administration. Five to seven graduates a year are predicted in these programs. Recruiting of new faculty members in this department will emphasize the competencies needed for these graduate and recreational programs.

Location of the Department of Health and Physical Education

The Department of Health and Physical Education provides some programs which do not relate closely to the major goals of the College. The newly constituted University Council on Human Development should consider questions related to the administrative placement of the Department of Health and Recreation and of the functionally related intramural athletics program.

Courses in Industrial Arts and Business Education

The College offers courses analogous to the academic major for students preparing to teach industrial arts and business education. All of the lower division courses in industrial arts will be discontinued on the Manoa Campus when the community colleges of the University are prepared to offer them, tentatively in 1969.

Vocational Teacher Training

As long as the community colleges of Hawaii recruit skilled tradesmen to teach in their vocational education programs, the University will assist these teachers in preparing for their work. The College has been designated as the agency for providing basic methodological courses for the vocational teachers, and a contract with the State Board of Vocational Education provides support from federal funds. Prior to each annual renewal of the contract, the need for this program will be reviewed with the community colleges, anticipating that it may be terminated after several years.

Courses for College Instructors

The College currently offers 26 courses at the graduate level which may be taken by students interested in teaching in higher education. The College welcomes the opportunity to offer courses or non-credit symposia or colloquia covering learning theory, techniques of instruction, philosophy of education, etc., in cooperation with the Community College System and those academic departments in the University desiring such experiences for their faculty or for their graduate students who plan to teach in institutions of higher learning. One such course, established in 1968, is offered jointly by faculty members from Education and Arts and Sciences.

Research and Development

Research in the College is conducted through several channels. Individual faculty members and departments pursue their special research interests. Organized research efforts are coordinated through the Education Research and Development Center and the Hawaii Curriculum Center.

The Education Research and Development Center (EDRAD) is a division of the College established to conduct and facilitate research related to the process of education. Its research specialists provide consultation and service to other members of the College and community, and also develop and execute programs of research within the Center. Currently, projects include research on the motivation of children for learning and school attainment, ways of taking into account varying backgrounds, abilities and learning readiness among different ethnic and socio-economic groups, and goals and methods suitable for modifying the cognitive behavior of school children.

The Hawaii Curriculum Center is a joint activity of the University and the State Department of Education, utilizing the former University Laboratory Schools as a specialized agency for large-scale design and development in selected areas of the curriculum and for demonstration and evaluation of local, national and international curricula. Working closely with the faculty of the College of Education, the Center has the secondary purpose of providing a site for research on curriculum problems and of stimulating and supporting curriculum related activities throughout the state. Through its own full-time staff and with the help of a number of part-time consultants, the Center incorporates the knowledge and interests of faculty members from other colleges and from many disciplines into the design and development of the program.

An increasing amount of institutional research is conducted by the Divisions of Field Services and Student Services.

In addition to the programs of basic and applied research of EDRAD and the curriculum development of the Hawaii Curriculum Center, there is a need for a learning laboratory permitting longitudinal studies on specific children.

Community Service

Because of the close relationship between the College and the State Department of Education, there has long been a heavy demand for special lectures, symposia participation, and consultation services by the College faculty for the schools and for teacher groups. These activities will continue, as the College has a strong professional interest in the quality of its graduates and their work. Of particular interest are the Beginning Teacher Development Program and the projects of the Hawaii Curriculum Center. The College will cooperate with the community colleges in training teacher aides and other para-professional personnel for the schools and in preparing teachers to make effective use of para-professional personnel. Evaluative studies by the Education Research and Development Center for the Department of Education and other agencies of the state and federal governments are increasing. Programs in fields outside formal schooling, such as community action projects, now include educational activities as an integral aspect.

Federal interest in the Pacific islands and Asia has brought the College, through its Division of Foreign Contracts, into service in the Trust Territory, Laos and Pakistan.

Community services in the College will tie in with its other functions, and overall consideration will be given to responding to requests for service, taking note of how these activities affect budget and space allocations for instruction and research.

Admissions

Interviews with students seeking admission to the teacher education program are of extreme importance to the College. Efforts to select students with the highest academic, personal, and emotional qualifications can be successful only when sufficient time is provided for interviewing and assessing applicants. Such assessment includes personal observation, speech proficiency, health clearance, previous academic attainment, emotional adjustment, and standardized test data.

Processes of recruiting and selection of students will be refined to assure that admission criteria may be followed effectively and that the Stiles Report dictum that "the best should teach" may be realized, without excessive reliance on grade point averages. Changes in admissions criteria will become even more important as the College moves to double the number of its graduates.

Advising

The major responsibility for the advising of undergraduate and fifth-year students in the College of Education and of pre-education freshmen and sophomores in the College of Arts and Sciences rests with the Division of Student Services. Academic, vocational and personal counseling, together with admission and retention interviews, recruitment, orientation, suspension, teacher placement and research comprise the areas of chief concern for this Division. In addition, the Division is responsible for keeping all student records and recommending to the Department of Education those graduates qualified for provisional and professional certificates.

To facilitate the various advising functions, the present student-advisor ratio of 627:1 must be reduced to the nationally accepted ratio of 300:1 by 1975-76.

Total faculty involvement in advising students is a College objective. The Division of Student Services is charged with developing a plan to effect such involvement.

Faculty Development

A growing responsibility of the College is that of providing a pre-service teacher education program, with increasing emphasis on graduate study. This will require recruitment and appointment of faculty members with primary interests in teacher education. The College will seek the appointment of faculty highly effective as teachers and genuinely interested in students, but also possessing scholarly attainment and promise. The recruitment of faculty members with experience in guiding graduate candidates is critical for the success of the school's doctoral programs.

Instruction and Student-Faculty Relations

Because of the increasing number of students anticipated in the pre-service program, the College will seek ways to ensure that the planned expansion of its student body is not at the expense of quality in the instructional program. The College is concerned with developing, demonstrating and fully utilizing the broad range of educational methods and media. Extensive use will be made of computer-assisted instruction, multi-media presentation, micro-teaching, closed-circuit television and sound instructional technology in the form of a systems approach. The Instructional Materials Center will be expanded to assist all departments of the College in the development and use of new methods and media.

The College will conduct institutional research and evaluation programs to determine the effectiveness of such concepts and practices as honors classes, team teaching, flexible class sizes, closed-circuit television, computer-assisted and other media instruction, and independent study.

Graduate programs, particularly for the doctorate, demand close working relationships between professors and candidates. Because of the quasi-tutorial methods of instruction involved in the most advanced aspects of the graduate students' academic programs, such as the thesis project, small class sizes and the allotment of faculty time for advising are essential. The College will develop policies and guidelines regarding faculty-student loads for class sizes and advising functions.

The College recognizes that the student has a helpful role to play in the recommending of policies and programs in a university. Ways will be developed to increase the participation of students in matters which affect their welfare and studies.

Developments Under Academic Development Plan I

1. Published *Preparation of Teachers and Other Educational Personnel in Hawaii* (Stiles, 1966); similar study completed within the College at same time.
2. Established the University Council on Teacher Education and ten Teacher Education Committees to work on subject areas and curricula.
3. Established the Hawaii Curriculum Center, in collaboration with State Department of Education, and converted the University Laboratory Schools to the Center.
4. Established the Education Research and Development Center, the Office of Foreign Contracts and the Department of Educational Communications.
5. Transferred lower division students to the College of Arts and Sciences.
6. Established the Ph. D. in Educational Psychology.
7. Completed the Ford Foundation "Educational Improvement Project in Hawaii."

Projected Developments Under Plan II

1. Expand pre-service teacher preparation from 500 to 1000 graduates annually.
2. Improve recruiting and selecting process for admitting juniors and seniors to teacher education.
3. Accommodate an increase in the number of M.Ed. graduates from 185 to over 500 annually.
4. Establish programs for Master of Science in Recreation Administration and Master of Science in Physical Education.
5. Improve and extend programs for in-service teacher education.
6. Establish Education Specialist program.
7. Expand Ph.D. programs and establish Ed.D. programs.

8. Cooperate with community colleges in preparing para-professional personnel for schools.
9. Extend services of the Instructional Materials Center to encourage curricular and teaching innovation throughout the College.
10. Cooperate with other colleges of University in preparing teachers for institutions of higher learning.
11. Develop a Child Learning Laboratory for instructional purposes.
12. Reconsider the location of the Department of Health and Physical Education and the assignment of intramural athletics.
13. Discontinue lower division courses in industrial arts when the community colleges can take them over.

Chapter 8: COLLEGE OF ENGINEERING

Purposes and Objectives

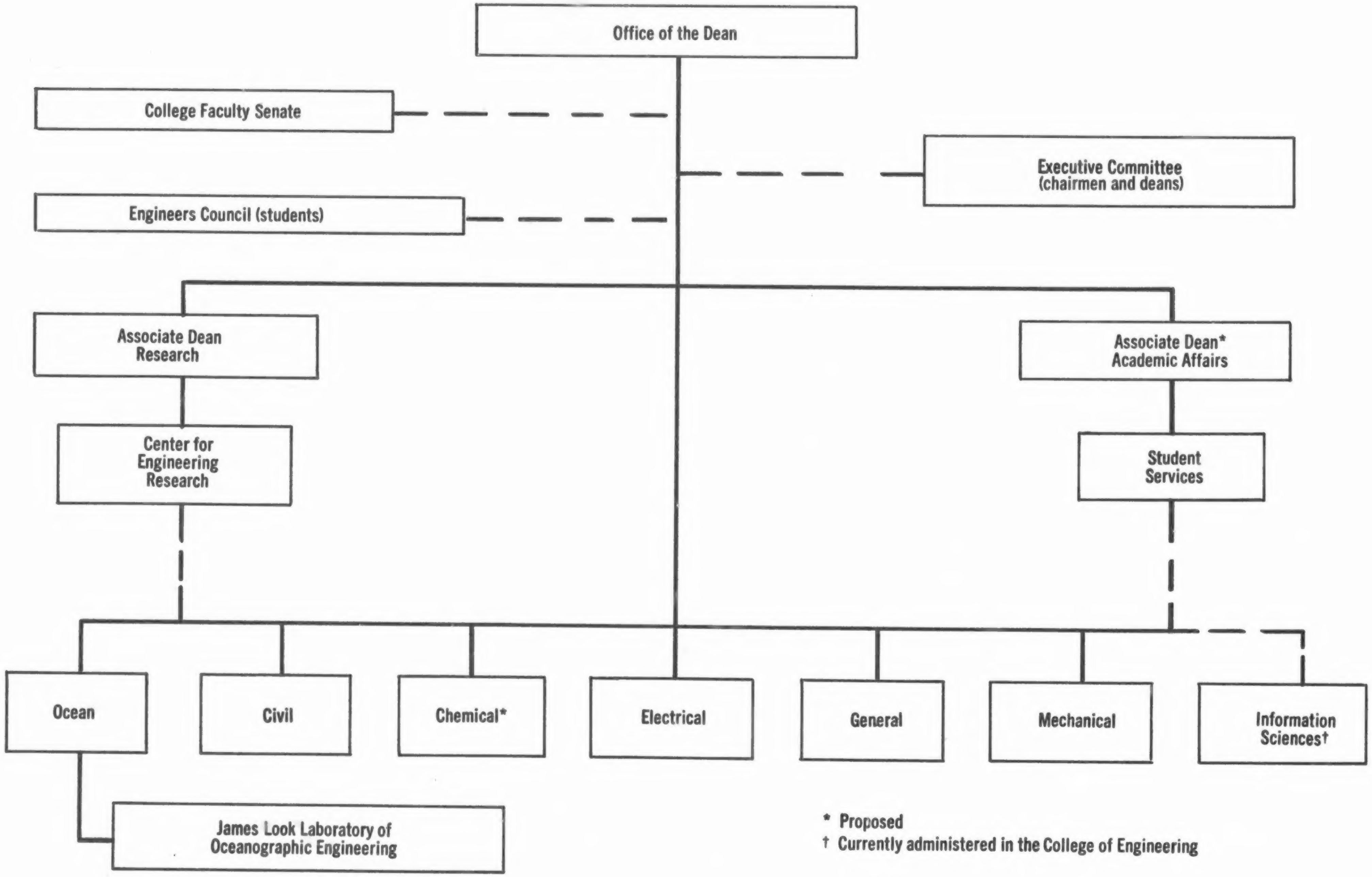
A freshman entering the College of Engineering in 1975 will spend most of his professional career in the 21st century. Although no one can predict with accuracy the engineering challenges of the next century, the College is confident that they will differ greatly from the problems of today. The freshman of 1975 came into this world at about the same time as atomic energy, space exploration, electronic computers and commercial television. He will graduate from a university located only three hours by supersonic jet from New York, Tokyo or Melbourne. His initial employment may be at the Hawaii terminal of an international satellite-linked computer network, in a state-wide mass transportation system, in a nuclear power plant on the Kona Coast, or in an underwater mining plant off Kauai.

The 21st century will place a greater emphasis on the interaction of science and technology with other aspects of human endeavor. Many of the social problems associated with the population explosion, urbanization, deterioration of the natural environment, economic imbalance and the development of emerging nations, as well as the exploration of outer space and exploitation of the ocean depths, lend themselves to an overall systems engineering approach.

In a recent book, *Lift the Human Spirit*, James R. Killian, Jr., Chairman of the Board of the Massachusetts Institute of Technology Corporation, notes the various areas of public service in which the engineer is uniquely qualified to contribute. He challenges educators to produce engineers who are sensitively attuned to the humanistic goals of society and who can serve as a bridge between science and the humanities to see that technological progress can be disciplined to enhance and not traumatize society.

In its endeavor to respond to this challenge, it is essential for the University of Hawaii, as the sole purveyor of engineering education in the State and throughout much of the Pacific Basin, to develop a balanced program of excellence in all aspects of engineering education, including undergraduate and graduate instruction, research and public service. Particularly during this period of extreme shortages of engineering graduates, which the Engineering Manpower Commission reports will reach crisis proportions by the mid-70's, the state must provide the educational opportunity for worthwhile engineering careers both in Hawaii and throughout the world. In keeping with the land-grant tradition of the University, imaginative continuing education programs to combat technical obsolescence of practicing engineers must also be offered. Research activity related to the specific problems of this geographic area and contributing to the local economy should be encouraged. And finally, since many of the rising expectations of developing nations depend upon

COLLEGE OF ENGINEERING


Office of the Dean
College Faculty Senate
Executive Committee (chairmen and deans)
Engineers Council (students)
Associate Dean Research
Associate Dean* Academic Affairs
Center for Engineering Research
Student Services
Ocean
Civil
Chemical*
Electrical
General
Mechanical
Information Sciences†
James Look Laboratory of Oceanographic Engineering

* Proposed
† Currently administered in the College of Engineering

engineering technology, there is an opportunity, approaching an obligation, for the College of Engineering to develop international educational programs that can indeed help to "lift the human spirit."

Present Status

Undergraduate Programs

Instruction in engineering at this institution dates back to the very beginning of the College of Hawaii in 1907. For the first half-century civil engineering was the only program offered, but curricula in general, electrical and mechanical engineering followed later. The civil engineering curriculum was fully accredited by the Engineers' Council for Professional Development in 1951, electrical engineering in 1962, and mechanical engineering in 1967. The current curriculum in general engineering was developed in cooperation with the College of Business Administration to provide a broad engineering background with a business and management orientation. All engineering freshmen enroll initially in the Department of General Engineering and remain there at least a year before selecting an engineering discipline in which to work toward a degree.

COLLEGE OF ENGINEERING

Academic Departments and Degree Programs

Academic Departments	Degree Programs		
	B.S.	Ph.D.	M.S.
Chemical	(X)	(X)	(X)
Civil	X	X	(X)
Electrical	X	X	X
General	X		
Mechanical	X	X	(X)
Ocean		X	(X)

X Existing
(X) Projected

Currently there are 916 undergraduates enrolled in engineering. One advantage of a relatively small professional program of this nature is that it encourages a close relationship among the students, as well as between the students and faculty—particularly at the upper division level. To enhance this close student-faculty relationship, the College has developed: a high school visitation program in cooperation with the Hawaii Society of Professional Engineers; an advising program for all engineering freshmen and undesignated sophomores; an advising system in which each student as soon as he indicates a departmental preference is assigned to a professor, who continues as his advisor for the duration of the student's enrollment in the department; and a visitation program for pre-engineering students on the Hilo Campus. To facilitate student-faculty interaction, all advising is done by regular engineering faculty. Additional communication is provided through the Engineers' Council of the University of Hawaii (ECUH), which consists of the presidents of the six engineering student technical and honorary societies, who meet monthly with the dean to discuss areas of mutual concern. The student chairman of ECUH also holds ad hoc non-voting membership in the College Faculty Senate.

College curricula are under continuous faculty review with the objective of decreasing the number of credits required for graduation, but without sacrificing the dual goals of a broad education plus adequate technological competence. Even though the University core of general education courses has been incorporated into all engineering curricula, the total number of credits required to earn an engineering degree has been lowered by as much as six hours in some of the curricula in the last four years. An innovative course, "The World of Engineering," has been developed for all engineering freshmen to sharpen their understanding of the role of engineering in everyday living, to heighten their sense of responsibility for the social changes that engineering achievements bring about, and to introduce them to

	Actual		Projected	
	1963-64	1968-69*	1972-73	1975-76
Student Majors (Fall):	778	1,010	1,535	1,750
Undergraduates	744	916	1,295	1,270
Graduates	34	94	240	480
Student Credit Hours (Fall)	4,330	6,758	9,820	11,235
Graduates (Degrees Awarded):				
Bachelors	90	111	170	210
Masters	11	34	110	200
Doctorate	—	—	15	40
Faculty and Staff (FTE):	44	84	155	190
Faculty	34	63	115	140
Civil Service	8	14	15	20
Positions in the Center for Engineering Research	2	7	25	30

* Data on graduates for 1967-68.

Note: Does not include information sciences currently administered by the College of Engineering.

the computer and other analytical tools of the engineer. A similar course is planned for non-engineering students, but with less emphasis on the analytical tools, to provide some appreciation of the impact of technology on the cybernetics era in which they will be living.

Graduate Programs

Rapid progress is being made in strengthening the graduate engineering program. Emphasis has been placed on this improvement, not only because it provides opportunity for advanced engineering study in Hawaii, but also because a strong engineering graduate program complements the undergraduate program as well. It is difficult to attract and retain a reputable faculty without a sound graduate program and related research activity, or to gain the extramural support needed to supplement legislative appropriations. Furthermore, if the College is to make significant contribution to the technological progress of the state, including the attraction of the so-called "think" industries to Hawaii, it must have a level of competence consistent with that required for doctoral instruction.

Prior to 1966 the only graduate programs in the College were at the master's level in civil and electrical engineering. In 1966 three additional graduate programs were inaugurated—the Ph.D. in electrical engineering and the M.S. in mechanical and ocean engineering. Ocean engineering, the application of engineering technology to the marine environment, is an interdisciplinary program involving oceanography and several engineering departments. Hawaii's is one of the first programs in ocean engineering, and with continuing strong support from local industrial, governmental and military organizations, this program should maintain its initial position of national leadership.

Research

A vigorous program of engineering research is essential to support the rapidly expanding graduate activity in the College. The Center for Engineering Research (CER) was established in 1966 as an integral part of the engineering academic program, rather than as a separate institute. The Director of the CER holds the title of Associate Dean of Engineering, and is responsible for coordinating all College research. Most of this activity is under the supervision of engineering faculty holding appointments in the instructional program.

Although the primary function of the CER is related to the graduate program, in the land-grant tradition of the University it also emphasizes research relevant to industry and to the engineering profession of the state. Engineering research facilities and programs are directed toward contributing to the critical mass of technical competence available to attract new industry and stimulate economic growth. To take maximum advantage of the unique resources of Hawaii, much of the research effort is on engineering applications in outer space and in the sea.

Extramural support for engineering research has expanded rapidly in the last three years, with major funding in the areas of radio science, information sciences and ocean engineering. Extramural support within the College amounted to $120,000 for 1965-66, $331,000 for 1968-69, and is expected to grow to $900,000 by 1975-76. Additional related research in engineering hydrology is administered in the Water Resources Research Center.

Relationship of Present Status to Academic Development Plan I

The development of engineering programs in the last four years has closely paralleled the original Academic Development Plan. The accredited undergraduate program in mechanical engineering, the M.S. program in mechanical engineering, and the doctoral program in electrical engineering were all in accordance with the initial plan. The new graduate program in ocean engineering is a modification of the recommendation to establish "a master's level option in hydraulics to support developments in coastal engineering and water resources." Similarly, the establishment of the Center for Engineering Research was primarily a change in name and level of interest from the existing Engineering Experiment Station.

The areas in which the College has fallen short of its initial goals are primarily related to facility development. The engineering building recommended for completion in 1967 will not be available until 1971, and it will be impossible to establish a new program in chemical engineering until adequate laboratory space is available. A proposal for establishing a doctoral program in civil engineering, originally scheduled for 1967-68, has been submitted to the Graduate Division. All other College goals outlined in the 1964 Academic Development Plan appear to be progressing on schedule.

Program Development

Undergraduate Programs

The engineering graduate with a baccalaureate degree is not a finished product. Due to the pace of technological change, it is neither possible nor desirable for an engineering college to view its bachelor's program as the terminal academic achievement of its graduates. Rather, it is necessary to educate students to an awareness that continuing education is essential to the practicing engineer. The engineering program recognizes this goal by emphasizing those courses which are basic and have relevance in meeting the challenges of a developing technology.

Today 40 per cent of all graduates of engineering baccalaureate programs continue with graduate work, and a recent major study on "Goals of Engineering Education," financed by the National Science Foundation, reports that in 1978 ". . . .two out of three bachelor's graduates in engineering will go on to a master's degree, and about one in seven will go on to the doctorate." As the dual objective of undergraduate engineering education as a preparation for immediate entry into industry or into graduate school becomes better defined, the College will develop curricula to provide greater flexibility to the student, whether he chooses engineering practice, additional graduate study, or both.

The engineering faculty has under review a proposal to increase the amount of lower division course work common to all engineering curricula. The fundamental nature of the basic engineering courses would be emphasized, and the areas of mutual interest, rather than the uniqueness of the various curricula, would be stressed. This would have the additional advantage of establishing common two-year pre-engineering courses that could be largely duplicated on the Hilo Campus or in the community colleges if they choose to do so, and thus facilitate the transfer of students into the professional engineering programs on the Manoa Campus. Consideration is also being given to providing greater flexibility in the existing undergraduate curricula, so that engineering students may strengthen their understanding of the social problems created by technology through a wider variety of course selection. Conversely, the number of courses within the engineering departments suitable for non-engineering students will be increased to provide the other side of the social-technological information interchange we hope to stimulate.

The only new undergraduate curriculum contemplated at this time is in chemical engineering. The recommendation in the first Plan for a Department of Chemical Engineering was strengthened in 1965 by the site-visit report of an educational consultant who heartily concurred in the establishment of such a program to supplement existing University programs and to assist in the food processing industry, in the expanding refinery operations in the state, and in the probable growth of industry for extracting chemical products from the sea. Existing laboratory facilities cannot support a chemical engineering program, but current plans for Phase II of the Engineering Building Complex, scheduled for completion in 1975, include adequate laboratories for chemical engineering.

Although new programs requiring more departments will be held to a minimum, emphasis in the next years will be directed toward developing strong options and cooperative programs which have particular relevance to this campus and to the state, within the existing administrative framework. Such programs under consideration include: a bio-engineering option for electrical engineers offered in conjunction with the School of Medicine; a coordinated program in water resources and sanitary engineering involving civil and ocean engineering, the School of Public Health and the Water Resources Research Center; an option in agricultural engineering given in cooperation with the College of Tropical Agriculture; a series of courses in systems theory that would have broad application to many social problems relating to urbanization, planning and developing nations; and service courses for such engineering-related areas as the architectural program in the College of Arts and Sciences.

Graduate Programs

The growth and continued improvement of the faculty and research facilities of the College should ultimately lead to the doctoral program in each of its graduate areas. Currently the only department in the College to offer the Ph.D. is electrical engineering. This will be followed by civil and ocean engineering, then mechanical engineering, and finally chemical engineering.

In addition to those degrees representing the traditional engineering disciplines, consideration is being given to the establishment of other inter-disciplinary M.S. and Ph.D. programs that cut across both departmental and college boundaries. Examples of areas include mechanics, computing systems, bio-engineering, water resources, systems engineering and social engineering. Initially none of these programs would require separate administrative or research facilities, but could be accommodated by faculty committees from existing departments. Should any of these programs become a major activity, then separate administrative identity and support could become necessary.

Research

Completion of the engineering laboratory building in 1971 will greatly increase the potential of the faculty for significant research activity. It will add impetus to the Center for Engineering Research by encouraging the various departments to expand their research as follows: Civil Engineering–structural engineering, traffic and transportation, hydrodynamics, coastal engineering, pollution control and ocean structures; Electrical Engineering–communications, computing systems, bio-engineering, solid-state devices and circuits, acoustics, power sources and control systems; Mechanical Engineering–mechanics of materials, thermosciences, heat transfer in the ocean environment, corrosion and ocean-mining techniques; Ocean Engineering—shoreline and harbor problems, including beach erosion, underwater sound propagation, optimum harbor design, and shoreline structures, deep ocean engineering, in-situ testing and man-in-the-sea research.

As the research competence and interest of the engineering faculty broadens, concerted effort will be made by the College to expand existing cooperative studies and to introduce new interdisciplinary research programs with other University units, including the Hawaii Institute of Geophysics, the Water Resources Research Center, the Pacific Biomedical Research Center, the Hawaii Agricultural Experiment Station, the School of Public Health, and the proposed Hawaii Institute of Information Sciences. Advances in engineering technology and instrumentation can contribute to essentially all areas of scientific research.

Continuing Education

A recent report published by the National Society of Professional Engineers, based upon a survey of licensed engineers, states: "Technical obsolescence is no longer a threat—it is a reality." The report emphasizes that engineering is a dynamic profession, and that there is a rapid change in technical knowledge. New procedures and basic theory, continuously being developed, must be acquired by the practicing engineer if he is to maximize his contribution to society, as well as his own personal advancement. An important objective of the College is to develop, in cooperation with other University and governmental organizations, a coordinated program of continuing education for the engineering profession.

Currently all of the departments with graduate programs offer late afternoon and evening graduate credit courses that can lead to an M.S. degree or which can be taken for updating in a particular area of specialty. Qualified practicing engineers are encouraged to enroll in these courses along with regular graduate students, and in general the response has been good. However, all of the courses are offered on the Manoa Campus and are taught by conventional instructional methods. Study is underway to develop better instructional service to the profession, particularly where relatively small numbers of engineers and scientists are located at great distance from the campus, such as at the Navy's Barking Sands Test Range on Kauai. A pilot program consisting of 30 half-hour videotapes on electric circuits is being prepared to help meet this type of need.

The College recently inaugurated a non-credit technical seminar series in cooperation with the State Technical Services Program. Assistance in planning this technical seminar series was provided by the response to questionnaires from nearly 200 practicing engineers, and from an Advisory Committee of the Hawaii Society of Professional Engineers. Continuous evaluation of these technical seminars, the graduate credit program, the videotape series and other educational programs of the University will be made to assure that the engineering profession of Hawaii has sufficient continuing educational opportunities to combat technical obsolescence.

International Programs

More foreign students are enrolled in engineering at universities throughout the United States than in any other field of study. This is not surprising, since many of the aspirations of developing countries are directly related to engineering progress. Improved systems of communication, transportation, sanitation and water supply; the development of natural resources; increased agricultural and industrial productivity—all are dependent upon engineering knowledge and application. Consequently, there is a responsibility for the College to develop imaginative programs in international engineering education, both on campus and, as supporting funds become available, throughout the Pacific Basin.

Examples of international projects under consideration in the College include: the production of videotaped programs on specialized courses to assist with the instruction at engineering schools in developing countries; a cooperative program with UCLA to establish an institute for teaching and research in information sciences in Kerala, India; the development on the Manoa Campus of a curriculum in electrical energy, which would have particular relevance to students from developing countries endeavoring to expand their power generation capability; and the application of systems analysis to the economic development of an emerging nation or area such as Micronesia. Although all of these projects are only in the exploratory discussion stage, they illustrate that the opportunity does exist for significant international programs to "lift the human spirit."

Relationship with Hilo Campus and the Community College System

The College will continue to cooperate with the Hilo Campus and the community colleges to assure the smooth transition of pre-engineering students into the professional program on the Manoa Campus. This requires an adequate advising system, as well as a coordinated curriculum, so that the pre-engineering student can transfer to the Manoa Campus at the junior level with no loss of credits.

There is good coordination between the Manoa and the Hilo campuses for the pre-engineering course work offered at Hilo. The engineering faculty from the Manoa Campus has assisted in establishing each new course, and has worked closely with the practicing engineers on Hilo who are teaching the courses on that campus, to assure that equivalent instruction is presented on both campuses. To facilitate communication, engineering faculty from Manoa visit Hilo each year to advise pre-engineering students and to confer on areas of mutual interest with the engineering instructors.

Exploratory discussions have been held for the purpose of establishing a similar working relationship with the Community College System. Other means for assisting pre-engineering instruction throughout the University of Hawaii system may include direct tie-in with the computer on the Manoa Campus and the videotaping of lectures and demonstrations for the introductory engineering courses. As the demand for engineering education in Hawaii exceeds the capacity of the Manoa Campus, a greater percentage of the lower division teaching load in the pre-engineering programs will be assumed by Hilo and the community colleges. This teaching effort must be closely coordinated with the accredited engineering programs on the Manoa Campus.

Developments Under Academic Development Plan I

1. Addition of master's program in mechanical and ocean engineering, of Ph.D. in electrical engineering.
2. Creation of Center for Engineering Research and significant increase in extramural funding for research.
3. Establishment of College Faculty Senate, with corresponding greater involvement of faculty and students in academic affairs.

Projected Developments Under Plan II

1. Create baccalaureate program in chemical engineering.
2. Strengthen and develop all graduate programs, going to the doctorate as faculty and research facilities reach necessary strength.
3. Develop cooperative academic programs with other colleges of the University, such as a bioengineering option.
4. Develop broader research programs, both within the College and in conjunction with other University units, especially after the completion of the engineering laboratory building.
5. Develop coordinated curriculum to facilitate transfer of students from the Hilo Campus and community colleges into the engineering baccalaureate programs.
6. Develop a coordinated program of continuing education.
7. Develop programs in international engineering education.

Chapter 9: INFORMATION SCIENCES

Purposes and Objectives

Information sciences as a field of knowledge can be defined as the science of processing information by natural or artificial systems. It includes the work of computers and other information processing machines such as control systems, as well as simulation of information systems on machines. Limits of the subject matter desirable for a graduate degree in this rapidly changing field are not yet clear, but it is generally agreed that the curriculum should include material on the probabilistic nature of information, coding methods, computer organization, computer languages, together with some material on either mathematical and statistical information processing or non-numerical and linguistic data processing.

A graduate student majoring in information sciences may have obtained his undergraduate degree in almost any field—from music to mechanical engineering—but he should have some preparation in mathematics and preferably some undergraduate experience as a computer user. The student interested primarily in how information sciences apply to a particular field would probably do better to major in that field while taking some courses in information sciences. The information sciences major is expected to be interested primarily in information sciences itself—that is, in the fundamental properties of information, constraints upon it, the methods available to process information and the characteristics of information processing systems.

The definitive study of the role of information sciences and computers in a university was provided in a February 1967 report by the Panel on Computers in Higher Education of the President's Science Advisory Committee* (hereafter referred to as the PSAC report). This committee outlined the undergraduate computer education needs of the 1970's as follows:

> A quantitative *estimate* was made by classifying the needs of major areas of study as (1) substantial, (2) limited and (3) casual. Category 1 includes primarily all the biological and physical sciences and engineering and roughly half the social sciences, mathematics, and business and commerce. Category 2 contains the other half of mathematics, social science, and business plus three-quarters of education. Category 3 includes mostly the humanities.
>
> In category 1 an introductory course in the freshman year would allow students to make routine use of the computer in many courses—probably more than 50 per cent—throughout their undergraduate career. Students in category 2 will probably take an introductory programming course at an early stage of their education and then make some use of the computer in three or four other courses during their 4 years as an undergraduate. Students in category 3 need not make any use of the computer as part of their major study although it is quite likely that even they will find it useful in a few courses. By some time in the 1970's it is doubtful that more than a few per cent of the students will graduate without having made some use of computers.

In addition to its role in undergraduate education, the computer will have significant uses in graduate training and research in perhaps most departments at the University of Hawaii by 1975-76. The Computing Center must provide a service to graduate students and to faculty in much the same way as the library. And in those departments which will make substantial use of the computer (as specified in the PSAC report) excellence in graduate education and research will not be possible without excellence in the computing facilities available.

The role of information sciences at the University includes two facets besides an instructional program—computer aided instruction (CAI) and information retrieval. Computer-aided instruction, except for a small number of prototype systems, is not yet available in a practical form. The development of CAI during the period of interest in this plan, however, promises important advantages to a large university. The use of CAI where it is appropriate will provide students of large introductory classes with the individualized attention not possible in any other way on a 25,000 student campus. The use of CAI in the 1970's holds out the possibility of quality education for tens of thousands of students at a price the State of Hawaii can afford.

Information retrieval and document retrieval systems now in the experimental phase at a few mainland universities allow the library user to call up for immediate use documents and books available only in remote locations. Information retrieval systems allow the library user to search library files for information when the user does not know the specific document in which the information exists. Two related facts must be considered in trying to predict when extensive information and document retrieval systems will be introduced at the University of Hawaii. The advent of satellite communications has shown that the cost of retrieval of documents and information is not entirely dependent on how far distant the user is from the document storage facility. Because of our remote location in the Pacific, the cost of accumulating extensive document collections in Hawaii in reasonable proximity to the University may be prohibitive. Hence it may be stated that the introduction of satellite communication systems will be economically feasible at the University of Hawaii before it is economically feasible at most mainland universities.

The Information Sciences Program must be able to provide the increasing number of trained professional people demanded by research and development organizations within the state. In 1968 a study by the state Department of Planning and Economic Development showed that "research and development organizations, including those in computer services, now employ more people in Hawaii than do hotels." The interim director of SWIS (the Statewide Information Service) has called for the creation of an "industry within our State that will employ no less than 6,000 employees within the next decade, and that will bring into the State of Hawaii revenues approaching $100,000,000."

The four major aspects of the role of information sciences at the University of Hawaii for the period up to 1975-76 will be: providing service courses for students in other fields; providing training for information science majors needed by Hawaii and by countries of the Pacific Basin; stimulating the use of computer-aided instruction within the University; and developing the use of information retrieval systems within the School of Library Studies and the Library.

Curriculum Plans

In December, 1967, after a study of information sciences on the Manoa Campus, a faculty committee recommended the formation of an interdisciplinary Department of Information Sciences. The committee also recommended that the responsibilities of the existing Computing Center be broadened to include research in information sciences (specifically including

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**Computers in Higher Education*, Report of the President's Science Advisory Committee, The White House, Washington, D.C., February, 1967.

computer-aided instruction and information retrieval), and that the Center be renamed the Hawaii Institute of Information Sciences to reflect these broadened responsibilities. An M.S. program in information sciences was established in September, 1968, and a graduate department of information sciences should be established as soon as sufficient student interest is demonstrated. Simultaneously, the Hawaii Institute of Information Sciences should be formed and charged with the responsibility for research in this field, with special emphasis on computer-aided instruction and information retrieval. These responsibilities should be undertaken in cooperation with the College of Education, and with the Library and the Graduate School of Library Studies, respectively.

The study of the faculty committee on information sciences emphasized the breadth of interest in the field, encompassing engineering, business, mathematics, the social sciences, library studies and other areas. Therefore, the academic program in information sciences should be structured so as to encourage participation from a wide range of disciplines. Initially the M.S. program in information sciences has been placed administratively in the College of Engineering, with a review to be held in 1970 as to the ultimate disposition of the program. In the interim, however, it should be recognized that the academic program in information sciences emphasizes the interdisciplinary nature of the field, and is by no means limited to engineering.

One additional method by which the Information Sciences Program plans to encourage participation with other academic disciplines is by the establishment of information science courses suitable for the University-wide general education program. At a time when the effects of technology upon the structure of society are so pronounced, every student should have the opportunity to become informed in the basic concepts of information processing in order to better assess its impact upon his own major field.

Research Plans

Research in the information sciences is of concern not only to the academic program in information sciences but also to the education, research and service aspects of the entire University. This fact is well illustrated by an Information Sciences Program and Electrical Engineering Department research project started in September, 1968—a projected University-wide computer system having its central facility on the Manoa Campus, with satellite computers and computer consoles linked to the center via University-designed radio channels.

The present University of Hawaii computing system is of a type called "on-line." This simply means that several computer consoles are available in the computing center so that a number of computer users can have direct and simultaneous access to the central processing unit. Since the purpose of the research project mentioned above is to add a number of long distance radio links to the existing computing system, the project has been named the Additive Links On-line Hawaii Area System—the ALOHA system.

When the ALOHA system is operating, the data processing needs throughout the University can be met by providing simple computer consoles at up to 50 locations. Preliminary plans call for consoles to be made available to the Hilo Campus, the community colleges on Oahu, Maui and Kauai, the University of Hawaii Institute for Astronomy observatories on Mauna Kea and Haleakala, and on Hawaii Institute of Geophysics ships conducting experiments in our offshore waters. With this system, undergraduates in the community colleges and perhaps some high school students could receive training in information processing and use the full capabilities of the Manoa Computing Center.

The ALOHA system is designed to meet the computing and information processing needs of the University system until well into the 1970's. The scientists and engineers involved, however, view this work not as an end in itself but as the first step in the participation of the University in a Pacific area net of computers and computer consoles which would provide extensive information transmission and processing capabilities to the developing nations of Asia, and significantly augment the existing information-handling capabilities of the United States, Japan and Australia.

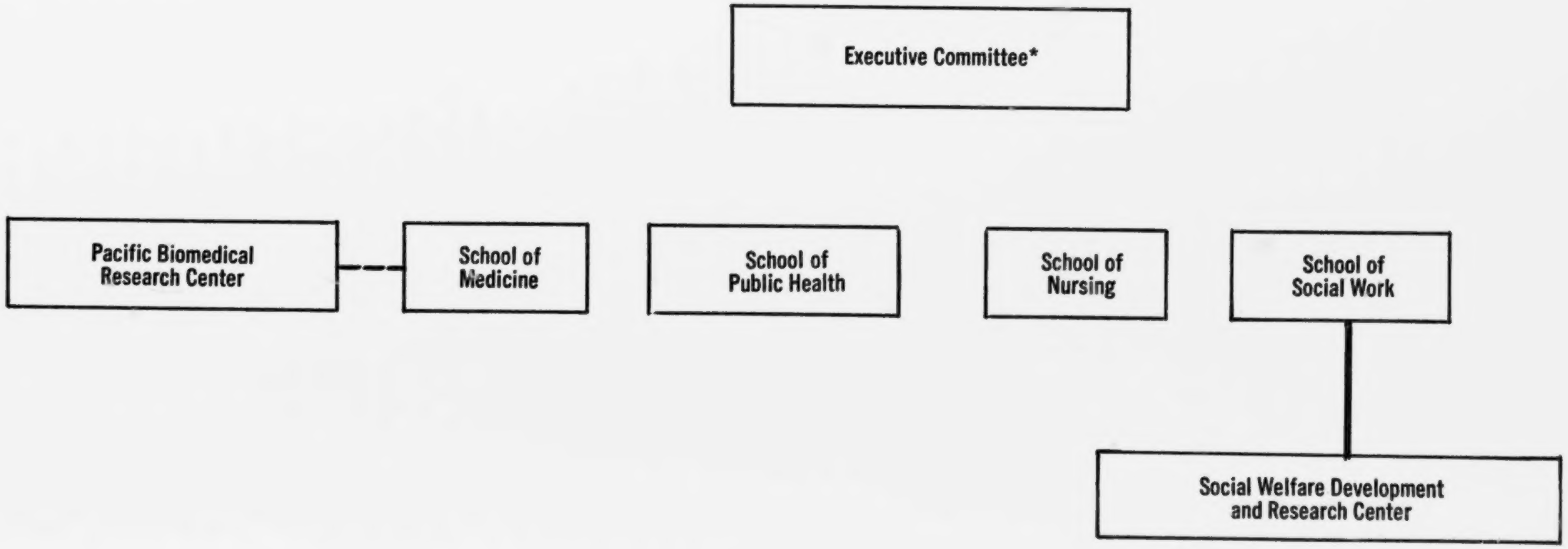
Developments Under Academic Development Plan I

1. Interdisciplinary master of science program in information sciences established, initially placed within College of Engineering; research in information sciences undertaken in cooperation with the Statistical and Computing Center.
2. Established research project under the Information Sciences Program and the Electrical Engineering Department; planned a University-wide computer system having its central facility on the Manoa Campus (ALOHA system).

Projected Developments Under Plan II

1. Develop service courses and sequential programs for undergraduate students in various fields.
2. Provide program for information sciences majors.
3. Encourage use of computer-aided instruction where needed throughout the University.
4. Develop use of information retrieval systems within the School of Library Studies and the Library.
5. Encourage research in information sciences to assist University-wide data-processing needs; develop ALOHA system.

COLLEGE OF HEALTH SCIENCES AND SOCIAL WELFARE


Executive Committee*
Pacific Biomedical Research Center
School of Medicine
School of Public Health
School of Nursing
School of Social Work
Social Welfare Development and Research Center

* Deans of the four schools, meeting as a coordinating group.

Chapter 10: COLLEGE OF HEALTH SCIENCES AND SOCIAL WELFARE

This College is a federation of four professional schools: the School of Medicine, the School of Nursing, the School of Public Health, and the School of Social Work. The deans of these schools form an executive committee which coordinates the programs of the four units, but for the most part each unit operates independently.

It is intended that the organizational intimacy provided by the College structure will nurture more curricular interchange among the four schools, which have in common a professional concern for the medical and social well-being of mankind. Given the strong individualism which characterizes professional schools, attaining this goal will probably be a long-term matter. Still in a formative stage, they will develop more rapidly under the substantial degree of autonomy which the college structure now permits. However, in its supervision of the College, the University will try to ensure that wasteful duplication of program and facilities does not occur.

The schools of the College of Health Sciences and Social Welfare work cooperatively in several areas at present:

1. International Health Programs. An affiliation with the LBJ Tropical Medical Center in Pago Pago, American Samoa, will allow the development of programs in continuing education for physicians, Samoan medical practitioners and allied health workers. In addition it will provide special resources for education at the student level and for research.

2. Leahi Hospital. The development of Leahi Hospital as a University hospital will provide opportunities for education and research throughout the schools of the College and result in improved health care.

3. Comprehensive Health Care and Social Sciences. It is hoped that under the auspices of the College of Health Sciences and Social Welfare a model of comprehensive health care and social welfare services can be set up in a poverty area.

4. School of Allied Health Professions. Efforts are being made to have a fifth school authorized, a School of Allied Health Professions. This would include such programs as dental hygiene, medical technology, speech pathology and audiology, comparative medicine technology, occupational therapy, physical medicine, and probably others.

The academic plans of each of the four existing schools in the College are considered separately below.

Chapter 11: SCHOOL OF MEDICINE

Purposes and Objectives

Medical schools traditionally have functioned primarily to educate physicians, but earlier concepts have been altered extensively so that the modern medical school performs a far broader role in the total health field. The University's Medical School is no exception to this trend, although the medical curriculum itself is limited by legislative authorization to the first two post-baccalaureate years (often referred to, but incorrectly, as the "pre-clinical" years) of professional medical education. Coupled with this "two-year" medical curriculum currently are very modest educational programs for medical interns and residents who have completed their M.D. elsewhere, as well as a nascent program of continuing education for practitioners.

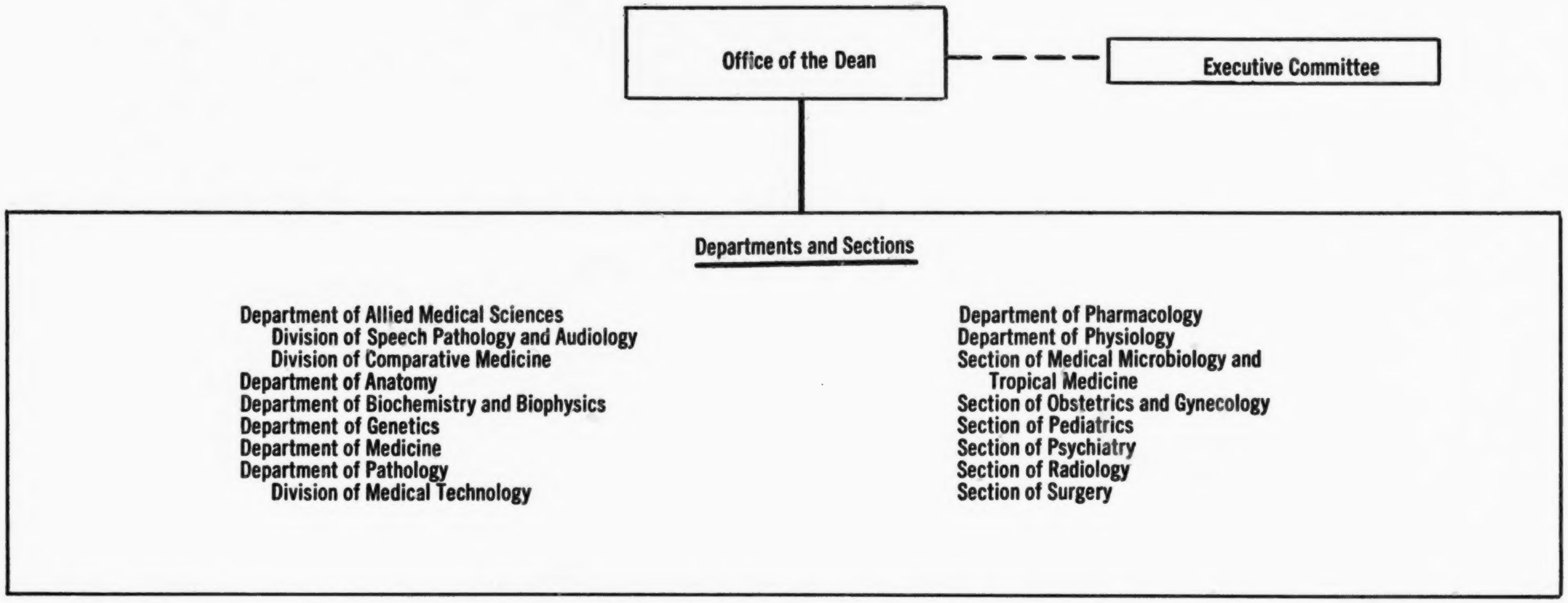
Other curricula lead to advanced degrees in the biomedical sciences for research scholars or for highly trained medical technicians.

Curricula in the allied medical sciences are also included in the School. By associating closely the para-medical programs with the main trunk of medical education, it is believed that greater relevance to human health can be given to careers involving medical technology, speech pathology, audiology and other fields of therapy. Mutual support between medical education, public health, nursing and public welfare is augmented by the organizational plan which closely links these four schools together in the College of Health Sciences and Social Welfare.

By reason of its position in the Central Pacific, the University aspires to leadership in many fields of education of particular importance to the area, including medicine. Opportunities for developing and upgrading health practices in the Pacific through education and training are acted on whenever feasible, provided that the College's services to the state are not thereby reduced. Medical service assistance, patterned after agricultural extension programs in rural areas, is a concept not yet implemented, but which could be of inestimable value in the Pacific area.

Research in biomedical problems is strongly

SCHOOL OF MEDICINE



Departments and Sections

- Department of Allied Medical Sciences
    - Division of Speech Pathology and Audiology
    - Division of Comparative Medicine
- Department of Anatomy
- Department of Biochemistry and Biophysics
- Department of Genetics
- Department of Medicine
- Department of Pathology
    - Division of Medical Technology
- Department of Pharmacology
- Department of Physiology
- Section of Medical Microbiology and Tropical Medicine
- Section of Obstetrics and Gynecology
- Section of Pediatrics
- Section of Psychiatry
- Section of Radiology
- Section of Surgery

SCHOOL OF MEDICINE

Academic Departments and Sections: Allied Medical Sciences (includes Speech Pathology and Audiology and Comparative Medicine); Anatomy; Biochemistry and Biophysics; Genetics; Medicine; Pathology (includes Medical Technology); Pharmacology; Physiology; Medical Microbiology and Tropical Medicine; Obstetrics and Gynecology; Pediatrics; Psychiatry; Surgery.

Degree Programs: Bachelor of Science (2 fields); Master of Science (6 fields); Doctor of Philosophy (5 fields).

		Actual	Projected	
		1968-69*	1972-73	1975-76
Student Majors (Fall):	ESTABLISHED 1965	172	330	365
Undergraduates		70	140	165
Graduate Students:				
Degree Candidates		57†	90	100
Medical Students		45	100	100
Student Credit Hours (Fall)		3,333	4,935	5,590
Graduates (Degrees Awarded):				
Bachelors		31	45	55
Masters		15	20	20
Doctorate		5	10	10
Faculty and Staff (FTE):				
Faculty		44	105	120
Civil Service		7	10	10
Federally or Privately Funded Positions		110	75	85
Non-compensated Clinical Faculty		250	265	275

*Data on graduates for 1967-68.
†14 of these are also medical students.

Note: Projections are based on the continuation of a two-year Medical School and would be increased if a four-year school is authorized.

encouraged by the School, enabling it to obtain increasing amounts of extramural financing to support research. In keeping with the University's principle of selective emphasis, certain fields of biomedical research are stressed because of special conditions imposed by Hawaii's ethnic composition, geographical location or physical environment. Emphasis has thus been placed, for example, on human genetics of semi-isolated island populations, on fundamental studies of marine organisms readily available and easily handled in Hawaii, on natural products derived from tropical flora and fauna, and on tropical medicine.

Present Operation

Teaching Program

The School of Medicine at its creation in 1965 comprised the pre-existing basic science departments of biochemistry and biophysics, genetics, pharmacology and physiology, and three newly created departments of anatomy, medicine and pathology. Also contributing essentially to the medical curriculum is the School of Public Health and the Department of Microbiology, in Arts and Sciences. Programs in medical technology and speech pathology and audiology were transferred to the School of Medicine to constitute the first units of a Department of Allied Medical Sciences.

Students seeking the degree of Doctor of Medicine may complete two years of graduate work in Hawaii, then transfer to a full-fledged medical school for the final two years of the M.D. program. Alternatively, students may elect to complete at Hawaii the requirements for a master's or doctor's degree in a basic science department.

The first Academic Development Plan stated the case for providing medical education at the University of Hawaii in terms that are still valid: to enable this state to make its contribution towards the education of physicians, biomedical scientists and health technicians badly needed by Hawaii and the entire nation; to enable local students to obtain a medical education which might not otherwise be available to them; to stimulate research and education in the biomedical sciences, helping Hawaii to become a center for these sciences in the Pacific.

As originally planned, the curriculum in medicine and allied fields would begin for the student in the junior year, thus obviating the traditional pre-medical curriculum and making room in the graduate years for some courses in liberal arts, in the behavioral sciences, in biology or other areas of interest to the student. It was especially intended to avoid tight sequences of courses, to give students many choices and clear opportunity to work on research projects of their choosing, prior to entering the narrower confinement of the last two years of medical education, or, alternatively, prior to selecting a Ph.D. program or one in veterinary medicine.

Implementation of the plan brought several notable changes. Application to the School were accepted from students in the junior year and up, but since each class is limited to 25 to 27 students (hundreds applied) it has turned out that all those accepted in the competition have already received the baccalaureate. The visiting board of medical educators who recommended provisional accreditation of the School in 1965 observed that medical students would want to get on with their professional studies and would tend to neglect liberal arts courses, should they be included in the curriculum, and that graduates from an untraditional two-year school might find difficulty in transferring to traditional medical schools for the last two years.

However, some of the originally conceived curricular innovations have been retained, notably an immediate introduction to clinical medicine, usually reserved for the second year. This acceleration in bringing the student to observation of actual treatment may substitute for the professional stimulation subtly provided in full-fledged schools by interaction with third and fourth year medical students. The introduction to clinical medicine is largely conducted by local doctors who serve, without compensation, as clinical professors on the Medical School faculty.

Although formal clinical instruction to medical students is thus limited in the present development of the School, it is extensive in auxiliary teaching programs. Members of the faculty participate widely in the teaching of interns and residents in Honolulu hospitals, and have been instrumental in facilitating the integration of such programs among various hospitals.

The early introduction of the student to clinical practice is in accord with the trend in most mainland schools. In general, there is dissatisfaction with the old pattern of teaching basic sciences in the first two years, deferring application of this knowledge to the last two. Rapid scientific advance renders much retained information obsolete or incorrect by the time the student graduates. Sharing in the responsibility for the care of patients provides a stimulating learning experience in problem-solving. Even as a two-year program, the University of Hawaii Medical School needs strong clinical departments to provide students with an education adequate to meet today's standards and to enable successful transfer to mainland schools.

Research

The new Medical School is already deeply involved in research. It started with a base of preexisting science departments strong in research, and as each new department was added faculty members were appointed according to the belief that a good teaching program requires a faculty whose attention is focused on the frontiers of knowledge in their fields. The School's administration has strongly encouraged research and tries to obtain the necessary facilities. Extramural funding has increased rapidly.

Much of the research under way in the Medical School is basic to an understanding of life processes. For example, geneticists are studying the elements of heredity in life forms ranging from bacteria to humans; in the biochemistry department the composition of nucleic acids and proteins is under investigation; the effects of stressful environments, both cold and hot, are studied in physiology; in pharmacology, the most potent antiviral agent so far discovered has evolved from a long program of analyses of natural plant products; peculiar enzymes called catalysts, widely distributed in man but little understood, are being examined in the pathology department; in anatomy the mechanics of sperm-ova union and growth are being followed; in the department of medicine, blood diseases peculiar to certain families have been discovered and are being studied.

Service

The Medical School played a prominent role in developing and implementing a nationally financed Regional Medical Program (heart disease, cancer, stroke) in Hawaii. In collaboration with the medical societies, practitioners and hospitals, and a widely representative citizens' committee, this program became operational in 1968, bringing up-to-date medical knowledge to Hawaii's physicians.

Starting in 1965, the School planned and placed into operation the first internship and residency program ever undertaken in Okinawa. Supported by the U.S. Army, a clinical and administrative faculty of 13 persons is serving this program in the Central Hospital near Gushikawa. A major objective of the program, aside from upgrading medical practice in Okinawa, is to bring the highly developed American house-officer system into use in an Asian setting. Moreover, it provides advanced medical education in Okinawa, where, in the past, medical students returning from their Japanese education lacked institutional support in their professional practice.

Future Development

Reassessing The "Preclinical" Medical School

When the University's truncated Medical School was planned in 1963, a national shortage of physicians, nearing the crisis stage, prompted the American Medical Association to advocate establishing "preclinical" medical schools at universities whose resources were insufficient to support a four-year school. Eight "preclinical" schools were at that time in existence or in process of development. Between then and now five of the eight have found resources and have determined to become full-fledged, so that today only three preclinical schools still exist—North Dakota, South Dakota and Hawaii.

The national crisis in physician shortage is nevertheless more acute than ever, despite the establishment of these new four-year schools and an expansion in older ones. Presidential adviser Colin McLeod, making a plea, in October, 1967, for more medical educational facilities, stated that the 8,000 doctors graduated each year in the United States must be increased to 11,000 simply to keep up with the increase in population.

Even while recognizing that requiring students to transfer to a second institution between the second and third year of medical education disrupted the educational continuum, the State of Hawaii in 1963 proposed to contribute to medical education to the extent its resources could afford. This fundamental policy is still operative, and the University is working to offer the best preclinical medical education possible. However, it should be recognized that today the two-year program is academically cramping and has not achieved the curriculum innovation or quality of program originally planned for the Medical School.

Major changes in federal or international programs may bring financial support to Hawaii in the near future. The United States-Japan Cooperative Program in the medical area, the proposed National Institute of Marine Medicine and Pharmacology, the Clinical Research Center grant program, various graduate training grant programs, the Regional Medical Program, the proposed Pacific Medical Center, possible involvement of WHO (World Health Organization) in medical education for the Pacific and Southeast Asian areas, are examples of sources of extramural funding that may become available to the University for developing a Pacific center of medical education, research and service. The University will be alert to such opportunities for eventually establishing a full-fledged medical school deriving its reason for being and support from without as well as within the state.

A four-year medical school at the University of Hawaii seems consistent with the planned development of academic distinction throughout the University. In addition to providing a complete medical education for students enrolled in the medical school, a four-year medical school can provide the research strength necessary for effective cooperation with other units of the University in interdisciplinary research programs.

At the same time, the University will not lose sight of the fact that the costs of transforming the present preclinical medical school to a four-year medical school may be prohibitive. If the outlay involved in such a project would limit and impede the normal development of the University, then the establishment of a four-year medical school would act to the detriment of the total University program. In fact, it is clear that the single overriding consideration in planning for a four-year medical school is that of costs. Accordingly, early in the period covered by this plan, the administration of the University should retain an independent group of outside consultants to provide a thorough study of the costs involved in the formation of a four-year medical school at the University of Hawaii. This study should project the initial funding necessary for such a development and also the continuing costs during the first five years of operation of a four-year program. In addition, the study should review the financial condition of comparable medical schools on the mainland, in order to ascertain what portion of these overall costs can be expected to be offset by extramural funding. This last projection may be most difficult to pin down precisely; nevertheless it is of prime importance if a rational decision on this important issue is to be reached.

When estimating the costs involved in establishing a medical school, it is necessary to project not only the budget necessary for the operation of the school but also (to paraphrase a question in the section on "Fiscal and Economic Aspects of the Development Plan") to consider how much annual income and social benefits will be lost to the people of Hawaii if a four-year medical school at the University of Hawaii is *not* established.

These questions, both financial and social, can best be answered by an independent group composed of economic analysts from outside the University. We reemphasize that the basic questions to be faced before the establishment of a four-year medical school are not primarily questions involving curriculum, academic requirements or the educational desirability of the school. They are questions focused on the economic impact of a four-year medical school upon the well-being of the University and on the State of Hawaii.

Development of Present Instructional Program

In the meantime, the Medical School will continue to develop within its present legislative charter as a two-year school. Faculty members will be added to keep pace with rising enrollments in the basic biomedical departments, and allow the number of medical students to increase to 100, as planned. There will be no major expansion of the two-year curriculum, but additional post-doctorate clinical education and continuing education for medical practitioners will be provided as these programs grow.

It is anticipated that all basic biomedical science departments will provide programs leading to the Ph.D., and, as the medically oriented departments increase in faculty strength, Ph.D. programs will be developed to make available to students all the options for terminal degrees.

Perhaps the most significant medical field to be developed in Hawaii as an adjunct to conventional departments is tropical medicine. Hawaii itself enjoys nearly complete freedom from tropical diseases, but its location and the ease of communication to tropical areas of the Pacific and Asia, and the laboratory facilities available here, make it a logical center for such research. Three leading research scientists in tropical medicine have been recruited to form the nucleus of this field—a virologist experienced in working with hemorrhagic fever and dengue in Southeast Asia, a parasitologist with experience in trypanosomiasis in Africa and malaria in Asia, and a leprologist with long experience studying this disease in China and Hong Kong.

A number of programs making use of Hawaii as a staging center for investigations into tropical medical problems are already in operation, especially those of the Pacific Medical laboratory, a branch of the National Institute of Allergy and Infectious Diseases. Other programs involving tropical diseases are already in progress within the University's Pacific Biomedical Research Center, the College of Tropical Agriculture and the Hawaii Institute of Marine Biology. Hawaii can and should become a world center in this field.

Selection of students for the medical education program will follow the policy already established of giving preference to resident students, but with a reasonably wide representation of students from the Pacific islands area, Asia and the mainland United States. Students admitted to the basic biomedical departments within the Medical School (anatomy, genetics, biochemistry and biophysics, physiology and pharmacology) will be selected according to the general policies for admittance of graduate students to the University, that is, without strong geographical preferences.

Allied Medical Sciences Curricula

Planned for implementation as soon as the medical education program per se is on an adequate footing are programs in the field of physical and occupational therapy, to be added to the existing allied medical science curricula in medical technology, speech pathology and audiology. Hawaii needs technical personnel in these fields and most have been recruited from the mainland. Costs of such programs are comparatively modest, and the existing personnel shortage is developing pressure for training programs here. The Medical School does not plan to educate more narrowly trained technicians, such as those who operate x-ray apparatus, heart-lung machines, artificial kidneys and the like, as long as the number of such specialists required in Hawaii remains small. Programs leading to a master's degree in medical technology, physical therapy and occupational therapy will be provided as soon as is practicable, following implementation of the baccalaureate programs in these fields. Speech pathology and audiology already has a master's program.

Potentially, a valuable educational service which the School can render to the developing nations and dependencies among the Pacific islands is the training of medical aides, or the supplementary education of medical practitioners trained elsewhere, e.g., Fij These "practical" physicians are in great demand a residents on the small islands of the archipelagoe stretched across the Pacific, where medical doctor cannot be regularly stationed. Moreover, this type o medical aid may well be an immediate answer to th problem of providing medical assistance to areas wit massive populations living at low subsistence levels such as India. Investigations will be undertaken t ascertain how best and at what level to train suc technical personnel. Should a service of this type b developed here, it may well be the Medical School' principal contribution to upgrading health practic in a major segment of the world.

Sources of Patients for Clinical Teaching

Extensive planning is required to ensure adequat teaching material for the clinical departments. Although the needs of a truncated medical school ar distinctly less than those of a four-year school, the nevertheless are considerable. Traditionally, the introduction to clinical medicine comes late in the second year of medical school, but except in the most conservative schools there are now moves to bring it forward in the curriculum. The students make associations of function with form when an internist is present in a course in physiology, or a surgeon in anatomy; insight and heightened interest in the field of study usually follow. Hawaii's Medical School stresses these associations from the beginning of medical instruction. Availability of patients for clinical demonstrations is thus essential to the instructional program, as it is for the research of clinicians and faculty members in both basic and clinical biomedical science departments.

In all American cities the source of patients for medical schools is changing. As health insurance has become nearly universal, the eleemosynary city and county hospitals are ceasing to be the great centers for ward teaching; adaptations are being made to secure "private" patients for teaching and research in medicine. Most medical schools in the United States have, or are setting up, faculty practice groups to assure a source of teaching material, and incidentally to facilitate their own services as consultants.

A group practice plan has been formulated for the University's Medical School. It is awaiting approval and will be implemented as soon as feasible. Nurses, secretarial and fiscal staff, and office facilities must be provided from practice income, and the means by which the students see the patients in the clinic or hospital must soon be organized. Concurrently, since the group practice plan itself will not cover all research and instructional demand for patients, at least some University services in hospitals should be established.

The programs of the School of Medicine will be affected by the future use made by the University of Leahi Hospital, about two miles from the Manoa Campus. In 1968 the Legislature converted Leahi from a private to a state institution, to be affiliated with the University of Hawaii as of January, 1969. In October the Board of Trustees of Leahi Hospital decided to determine the legality of turning all Leahi land and endowment funds over to the Medical School. These developments have important bearing on the fiscal operations and the goals of the present Medical School, as compared with a four-year institution. Medical authorities believe that the economics of clinic and clinical staff utilization are such that it becomes less efficient to carry only a two-year medical school program and maintain the necessary staff and facilities for this limited purpose.

Research

Significant programs in biomedical research were initiated within the Pacific Biomedical Research Center (PBRC) prior to the establishment of the Medical School, setting a pattern of extensive research participation which became basic policy in recruiting faculty and graduate students in all departments of the School. Research entailing interdisciplinary involvement is most frequently administered through the PBRC (described in Chapter 18 of this Plan). The PBRC likewise administers major research facilities of general use to the several biomedical departments, such as animal colonies, electron microscopes, etc., which are more efficiently operated by a single unit for the use of all.

Efforts are being made to lodge in Hawaii, within the Medical School or other units of the University, major national and international research centers having special relevance to the tropical Pacific and Asia. In the near future, it is expected that the World Health Organization will establish within the University's Institute of Population Genetics an International Reference Center for Processing Human Genetics Data, to utilize the expertise of Medical School faculty in computer applications in this field, and affording to faculty and visiting scientists unusual research opportunities. Similarly, the eventual establishment of a national laboratory for experimental marine biology is expected. It would work in conjunction with the University's Laboratory of Experimental Marine Biology now under construction at the Kewalo Basin Marine Sciences campus on the Honolulu waterfront. A center here for tropical disease investigations is a distinct possibility and will be sought through public and private financing. A clinical Research Center grant may be received from the U.S. Public Health Service which would provide a ward at Leahi Hospital with complete support for clinical investigations relevant to this geographical area.

Developments Under Academic Development Plan I

1. Creation of the School of Medicine in 1965.
2. Provisional accreditation in 1965.
3. Acceptance of first class of medical students in 1967.

Projected Developments Under Plan II

1. Expand medical class from 25 to 50 students.
2. Develop biomedical science departments and clinical faculty to teach both pre-doctoral programs and post-doctorate clinical education and continuing education.
3. Establish programs in tropical diseases and in allied medical sciences, such as physical and occupational therapy.
4. Take under consideration a program for educating medical personnel to serve areas where it is not yet feasible to supply doctors' services.
5. Prepare complete financial analysis of the costs involved in establishing *versus* the costs involved in *not* establishing a four-year medical school at the University of Hawaii. This study should be made by a group of outside consultants.

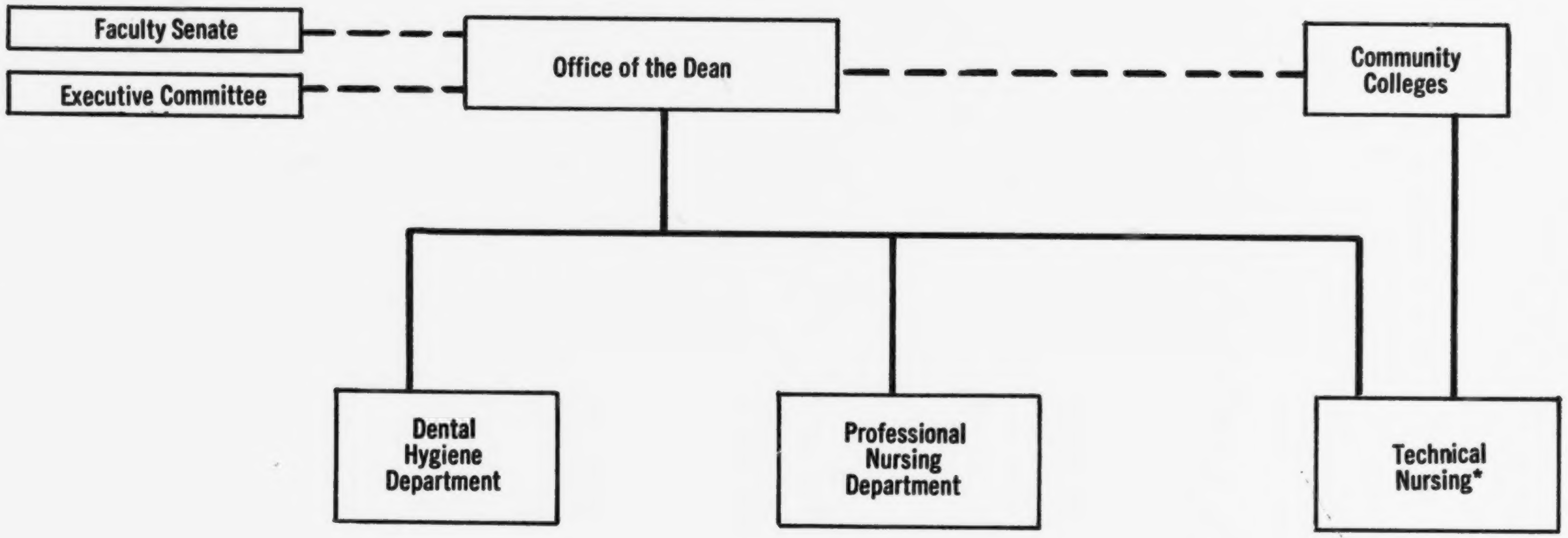
Chapter 12: SCHOOL OF NURSING

Purposes and Objectives

When the training programs of private hospitals in Honolulu were discontinued between 1966 and 1968, the University's School of Nursing was given sole responsibility for the education of nurses in Hawaii, and hence in Pacific areas which rely upon Hawaii. The School of Nursing provides undergraduate educational programs for students in dental hygiene, technical nursing and professional nursing, and graduate programs for professional nurses. All these programs are nationally accredited. The School also contributes to nursing research and serves as a resource for the continuing education of nurses and dental hygienists in Hawaii and in the Pacific Basin.

Over the past decade, nursing has undergone basic changes, apparent in the greater responsibility demanded of nurses in hospitals and in community agencies, and reflected in the more demanding educational requirements for all categories in the pro-

SCHOOL OF NURSING


Faculty Senate
Executive Committee
Office of the Dean
Community Colleges
Dental Hygiene Department
Professional Nursing Department
Technical Nursing*

* In 1971-72 the Technical Nursing Program will be located solely at the Community Colleges.

SCHOOL OF NURSING

Academic Departments: Technical Nursing, Dental Hygiene, Professional Nursing.

Degree Programs: Associate of Science in Nursing; Bachelor of Science in Nursing; Master of Science in Nursing Specialties; Doctor of Philosophy (projected).

	Actual		Projected	
	1963-64	1968-69*	1972-73†	1975-76†
Student Majors (Fall):	239	327	305	375
Undergraduates	239	315	270	325
Graduates	—	12	35	50
Student Credit Hours (Fall)	1,351	2,828	2,695	3,245
Graduates (Degrees Awarded):				
Bachelors	27	30	50	60
Masters	—	5	20	25
Faculty and Staff (FTE):	25	63	50	40
Faculty	21	44	35	35
Civil Service	2	7	5	5
Federally Funded Positions	2	12	10	—

* Data on graduates for 1967-68.

† Excludes the Technical Nursing program, planned for transfer to the Community colleges.

fession. Technical nurses, who provide patient care under supervision, complete a two-year lower division program to achieve an Associate of Science degree. Professional nurses require education at the baccalaureate level and are prepared to assume responsibilities for patient nursing care and for providing leadership to ancillary groups giving nursing care. A small but growing fraction of the nursing baccalaureates continue graduate education leading to the master's or doctor's degree in programs designed to prepare them for positions as clinical specialists, teachers, supervisors or top-level administrators.

The contemporary complex medical team can function effectively only when nurses at all these various levels are available. While the present nursing positions in hospitals and health agencies in Hawaii do not reflect a general shortage of technical nurses, there are not sufficient numbers to meet the recommended ratios of nurse-patient population figures, as listed below. Further, there is a shortage of professional nurses educated at the baccalaureate and graduate levels. This deficiency can be remedied by planning, developing and enlarging the appropriate programs at the Manoa Campus.

The University has accepted the responsibility for the education of all technical nurses for the State of Hawaii. To meet this demand, the School of Nursing, working with the community colleges, plans to transfer the technical nursing program to the community colleges by 1971. Until then the program will remain at the Manoa Campus.

During the term of Academic Development Plan II, the School of Nursing intends to develop, as required, associate nursing degree programs at the community colleges, to improve and to enlarge the nursing baccalaureate and master's programs at the Manoa Campus, and to plan a future nursing doctorate program.

Vital to effective planning is the determination of the future requirements of Hawaii for all types of nurses. The Western Interstate Commission for Higher Education (WICHE) reported in 1966 upon extant and recommended numbers of nurses needed per 100,000 persons of state population, and has studied the optimal distribution of types of nurses. These data, summarized below, serve to reinforce the stated goals of the School of Nursing.

NURSES REQUIRED FOR HAWAII

	extant 1968		recommended* 1968	
Total nurses per 100,000 population	285		350	
Technical Nurses (A.S.)	230	(80.7%)	235	(67%)
Professional Nurses (B.S.)	50	(17.5%)	70	(20%)
Professional Nurses (M.S.)	5	(01.8%)	45	(13%)

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*WICHE, Today and Tomorrow in Western Nursing. Western Interstate Commission for Higher Education, Appendix B, Table 6, April 1966, p. 57.

An earlier report† on Hawaii's needs for nurses projects essentially similar requirements.

To formulate its goals efficiently, the School of Nursing has established a state-wide committee to be appointed to assist the Legislative Reference Bureau to update its 1962 study of nursing education in Hawaii. The findings of this study will provide a basis for recommendations regarding the number and placement of associate degree nursing programs on Oahu and the feasibility of establishing modified versions of these programs on the neighbor islands. Other concerns of this committee will be to determine the need and placement of practical nurse and nurse aide programs, and to advise upon continuing education programs for professional updating.

Technical Nursing Program

Graduates of the two-year curriculum are prepared for beginning nurse positions as registered nurses upon successfully completing the state examination for licensure. The program consists of a foundation in natural science, social science and communication, combined with courses in nursing theory and practice. The associate degree nursing program is accredited by the National League for Nursing and by the Hawaii State Board of Nursing.

According to the Kosaki report†, 312 technical nurses must be prepared from 1968-70 to reach the projected state requirement of 670 additional technical nurses.

Professional Nursing Program

A four and one-half year curriculum prepares professional nurses for professional practice in hospitals, public health agencies, homes and industries. Prenursing students enroll in the College of Arts and Sciences and are admitted to the professional nursing curriculum at the end of the sophomore year upon completion of at least 60 credits in the liberal arts. The five-semester upper division professional nursing program utilizes clinical facilities in the community, as well as course work at the University, to attain its objectives. In 1967 the program was surveyed by the National League for Nursing and was granted accreditation for six years.

Dental Hygiene Program

The Department of Dental Hygiene offers the only program in dental hygiene in Hawaii, one accredited by the Council on Dental Education of the American Dental Association. Students who complete the two-year program qualify for admission to the national and state dental hygiene board examinations. Upon licensure they may practice dental hygiene under a dentist's supervision in private practice and in the State Department of Health. The program also provides continuing education of dental hygienists. Affiliations have been arranged with five hospitals and clinics; additional clinical affiliations will be established to provide clinical experiences for students.

Proposed Baccalaureate Program in Dental Hygiene

A more effective utilization of auxiliary personnel is needed to meet the nation's growing demand for dental health care and to solve the problem of shortage of dentists. The dental hygienist will be expected to assume increased responsibility for dental care. This altered role requires major revision of the present educational program.

The dental hygiene faculty plans to develop a baccalaureate degree program. The proper education of a dental hygienist, which is multi-disciplinary, should include general education as well as the dental hygiene major. The liberal arts component should lead the student to a better understanding of self and society. Courses in the basic sciences should form the foundation for dental sciences and for clinical practice.

In March, 1967, a survey was conducted by the Dental Hygiene Department to determine the opinions of dentists practicing in Hawaii regarding a baccalaureate program. The results revealed that 65 per cent are in favor of the proposed program, 25 per cent prefer continuation of the two-year program, and 11 per cent indicated no preference. With an increased role and responsibility for the dental hygienist, a four-year program seems both essential and desired. The proposed program, one of the few in the nation, can fill some of the research and community service functions customarily undertaken by a school of dentistry, for which the University has no present plans.

Graduate Programs

Graduate nursing education prepares candidates for positions of responsibility in areas of administration, research, instruction, consultation and clinical specialization. Hawaii requires at least 213 additional graduate nurses (M.S.) by 1970. These programs are particularly vital to the future role of the nursing profession, because of its increased responsibility for quality patient care.

A Master of Science program in mental health-psychiatric nursing began in September 1965, supported by federal funds. Two additional graduate nursing programs are being implemented during the academic year 1968-69: administration in organized nursing services (public health, hospital, or extended care) and community health nursing. A fourth graduate program, nursing in biophysical pathology, will be started in September 1969.

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†Mildred D. Kosaki. *Nursing and Nursing Education in Hawaii.* Legislative Reference Bureau, University of Hawaii, Report No. 3, 1962. This report is now being updated by Harriet Joesting of the Bureau.

There are two routes to doctoral preparation of nurses to choose from: preparation through the Ph.D. in a basic discipline, referred to as the nurse scientist program, or preparation that leads to a Doctor of Nursing Science (D.N.Sc.). The former preparation gives depth of education in one discipline, with emphasis on research training for the evolvement of new basic knowledge. The second route includes research training but with emphasis on clinical training for expert nursing practice, applying knowledge developed by others. There is no consensus about the better route for doctoral training, but at this time, when there are so few nurse doctorates available to serve as faculty members, doctoral training through the Ph.D. in the natural or the behavioral sciences appears preferable. Given sufficient study and time, near the end of the span covered by this Academic Development Plan, the full development of the M.S. program should lead to the establishment of a doctoral nursing program.

Continuing Education

The School of Nursing works with many community organizations in Hawaii and in the Pacific Basin to provide continuing education. Its three major contributions include formal courses for nurses already in practice but who are working toward the baccalaureate degree; providing non-credit courses for professional updating; and maintaining liaison between nurses in service and those in educational settings.

Faculty members of the School have participated in international health programs sponsored by the Institute for Technical Interchange (East-West Center) by presenting lectures to practitioners from the South Pacific. Further workshops and conferences on campus are being planned for nursing and dental health practitioners. Working with the Peace Corps, the faculty has presented a lecture series to nurses destined for the South Pacific, and has participated on consultation teams in Okinawa, Western Samoa and Saipan. Future plans in international health programs now center on the Pacific Trust Territory and American Samoa.

Local programs in continuing education will be expanded to meet a large demand. A six-year series of residential conferences, financed by federal funds, was concluded in 1968. Hospital administrators and nursing services have requested resumption of this program as expanded to include nursing personnel not currently eligible.

Other community service functions have included nursing procedure training sessions, a series of psychiatric nursing dialogues conducted in 1968, and a postgraduate course in the practical aspects of dental radiography for dental hygienists presented in 1967.

Since Hawaii has no dental school, the Department of Dental Hygiene has played a major role in conducting, coordinating or planning five postgraduate courses for dentists at the University of Hawaii Dental Hygiene Clinic during the past year. Eight to twelve postgraduate courses are planned over the next five years. The Department of Dental Hygiene, the Division of Continuing Education, and state and local dental societies are now involved in planning a proposal for a federal grant for providing continuing education for dentists.

Despite these efforts, the School of Nursing has not kept pace with the very large demand for continuing education offerings. Expansion of all these programs is foreseen. Such expansion must take into account collaboration with the Medical School, with dentists, and with other community groups. The offering of programs on neighbor islands is also considered most important.

Research

Sound development of graduate studies in the School of Nursing must be supported by well-conceived research programs. Plans at present identify three areas of concentration. *Educational research* will be concerned with the principles underlying course content and curricula, as well as with the nature of the teaching-learning process, as relative to type of study units, audio visual aids, group teaching, etc., in nursing. *Administrative research* will focus on two central problems: (1) criteria appropriate for improving a nursing faculty and staff, as such criteria would need to be understood by an administrator; (2) study of roles and functions of various types of nurses in service settings, together with techniques of administrative leadership and control. The third area of major interest, *clinical research,* will be the most important. For the past 10 years the nursing profession has given increasing attention to theoretical principles as these presumably underlie the field of nursing as a science and not solely a practical art. Though various theoretical models have been proposed, there has been little coordinated testing of hypotheses. The University of Hawaii School of Nursing faculty members are in a very favorable position to begin testing their own tentative theories in a clinical context. Furthermore, because of its ethnic setting, this University should be especially qualified to carry on significant clinical research related to the variables of cultural and environmental differences.

Transfer of Technical Nursing Programs to Community Colleges

The question of the location and number of technical nursing programs in the community colleges is being studied by a nursing education committee for the State of Hawaii. Such state-wide planning is vital for effective distribution of programs. A general plan is outlined below.

Several unresolved issues influence future planning. These are the location of Kapiolani Community College in central Honolulu, the imminence of a medical center complex, and the demographic trends of the neighbor islands. The associate nursing degree program will be moved to the Community College System in Fall, 1971.

Complete or partial programs can be established as required, contingent upon state resources and nursing education needs. For example, branches of associate degree nursing education could be established in community colleges on Oahu and on the neighbor islands which could offer programs every second or third year, based on actual demand. The major problems in establishing a complete program in other community colleges are recruitment of qualified students and faculty, and availability of clinical facilities. A lack of comprehensive clinical facilities could limit a program to the first year only, with students transferring to Kapiolani Community College for their second year.

Maui Community College has expressed an interest in inaugurating nursing programs. In the Fall of 1969 it is recommended that a site study be done by a nurse educator to determine the adequacy of clinical facilities for teaching purposes. Maui Community College will also survey the high schools to determine whether a minimum of 20 nursing students could be enrolled. The first year of the associate nursing degree program could be started in 1970.

Kauai Community College is working to establish a practical nursing program in 1969. It appears necessary to offer this program for one or two classes to meet the immediate, pressing needs for this type of nursing assistant personnel. As the Community College's general education program develops, the state committee on nursing will assess the advisability of initiating an associate nursing degree program in 1970 or 1971.

The physical separation of the associate nursing degree and the professional nursing programs must not be allowed to interrupt coordinated planning, so essential to meet the comprehensive nursing needs of Hawaii. It is strongly recommended that liaison be maintained between the Manoa Campus and the community colleges' nursing programs.

Faculty

The nature and size of the faculty are influenced by many factors. Both the Hawaii State Board of Nursing and the National League for Nursing have accredited the School of Nursing. The National League's policy is to suggest a maximum faculty-student ratio of 1:8 to 1:10. However, these ratios are required primarily for maintenance of undergraduate degree programs. Continuing education programs, nursing research, and a future strong demand for graduate nursing education are all aspects of the profession which require additional faculty and which contribute to a competent, modern, multi-faceted School of Nursing. These additional and necessary requirements for faculty are, of course, not reflected in the conventional computation of student-faculty ratio and are most difficult to measure by a single parameter. The projected requirements for faculty have thus been based upon the proposed development of undergraduate instructional programs, graduate programs, continuing education programs, and of nursing research.

Student Advising

The present system of assigning a faculty member from the Department of Professional Nursing as an academic advisor to pre-nursing students in the College of Arts and Sciences has worked excellently. Based on this experience, plans for in-college advising will include an Office of Student Services to maintain student records and to provide secretarial and advising services. Proximity of the academic advisor to students in the College of Arts and Sciences also benefits the recruitment of students into nursing.

In the Department of Professional Nursing each faculty member is assigned to four to eight advisees for the entire period of each student's stay in the School. In the Technical Nursing Department each faculty member advises, at least twice yearly, those students assigned to her laboratory section. Dental hygiene freshmen are advised at least twice annually, and sophomores have six advisory conferences during the year. It is planned to maintain this availability to instructors for the students of the School.

Developments Under Academic Development Plan I

1. Continued expansion of baccalaureate nursing program to meet state's needs.
2. Provided adequate facilities for training dental hygienists.
3. Expanded two-year associate degree program at the Manoa Campus.
4. Redeveloped Medical Technology Program, now located in School of Medicine.
5. Inaugurated master's degree.

Projected Developments Under Plan II

1. Transfer associate degree program to the community colleges in 1971-72.
2. Updating of 1962 study of nursing education (Kosaki Report) by Legislative Reference Bureau, assisted by statewide Committee on Nursing Education; long-range planning to be continued, with

coordination of associate nursing degree programs at community colleges with preprofessional degree programs at the Manoa Campus.

3. Improve and enlarge undergraduate and graduate professional programs at the Manoa Campus.
4. Develop extant dental hygiene two-year program into a four-year program combining liberal arts with professional education.
5. Expand continuing education programs to meet community and Pacific Basin health needs.
6. Prepare feasibility study for doctorate degree in nursing.

Chapter 13: SCHOOL OF PUBLIC HEALTH

Purposes and Objectives

The overall purpose of the School of Public Health is to foster within its faculty and students the skills and professional judgment needed for the diagnosis and solution of community health problems, including a concern for the physical, mental and social well-being of the community. This does not imply that public health people must themselves provide the social, economic and political environments necessary for good community health, but that they must be prepared to work closely with others who directly affect these environments. Thus, the graduate program of the School seeks to prepare practitioners whose concern for the community health commits them to the broad interests of the people served rather than to the narrowly defined interests of a single agency or the dimensions of a single problem.

In addition to its teaching activities, the School actively pursues its responsibilty to the state, the nation and to the world-wide communities which it serves, through programs of research, continuing education and consultation. The School's attention is focused primarily on the health consequences of rapid urbanization, a process common to Hawaii, the mainland U.S., and to other Pacific and Asian nations.

The objectives of the School are not only to educate persons for a variety of careers in the health field for service activities, but also to prepare individuals who will conduct research and contribute to the enlarging base of knowledge in the sciences pertinent to health—the biological sciences, the applied social sciences, engineering and statistics. The essence of public health practice is the skill and wisdom with which community resources are mobilized and organized to provide for the achievement of optimum physical and mental health and social well-being for all people.

Guided by these objectives, the principal functions of the School are:

1. To provide graduate instruction in the health sciences for students in the University, serving thereby first a local need to improve the public health leadership skills available in Hawaii and, simultaneously, a regional need for such improvement.
2. To encourage, develop and conduct health research in Hawaii and the Asian-Pacific communities.
3. To assist in rendering and improving community health services in the state and Pacific-Asian areas.

The development of programs to assist in the training of Asian and Pacific health workers (largely funded by federal, private or international sources) is in accord with the established University policy to encourage programs which build upon Hawaii's special characteristics relating to its geographical location, physical environment and multi-cultural population.

Organization

Since public health practice requires a pooling of the resources of biologists, social scientists and engineers in the solution of community health problems, the School demonstrates an interdisciplinary approach for students and community agencies by functioning as one department. Teaching, research, service and continuing education are governed by faculty committees with wide latitude in determining policy for the School. These functions are integrated through an executive committee chaired by the Dean.

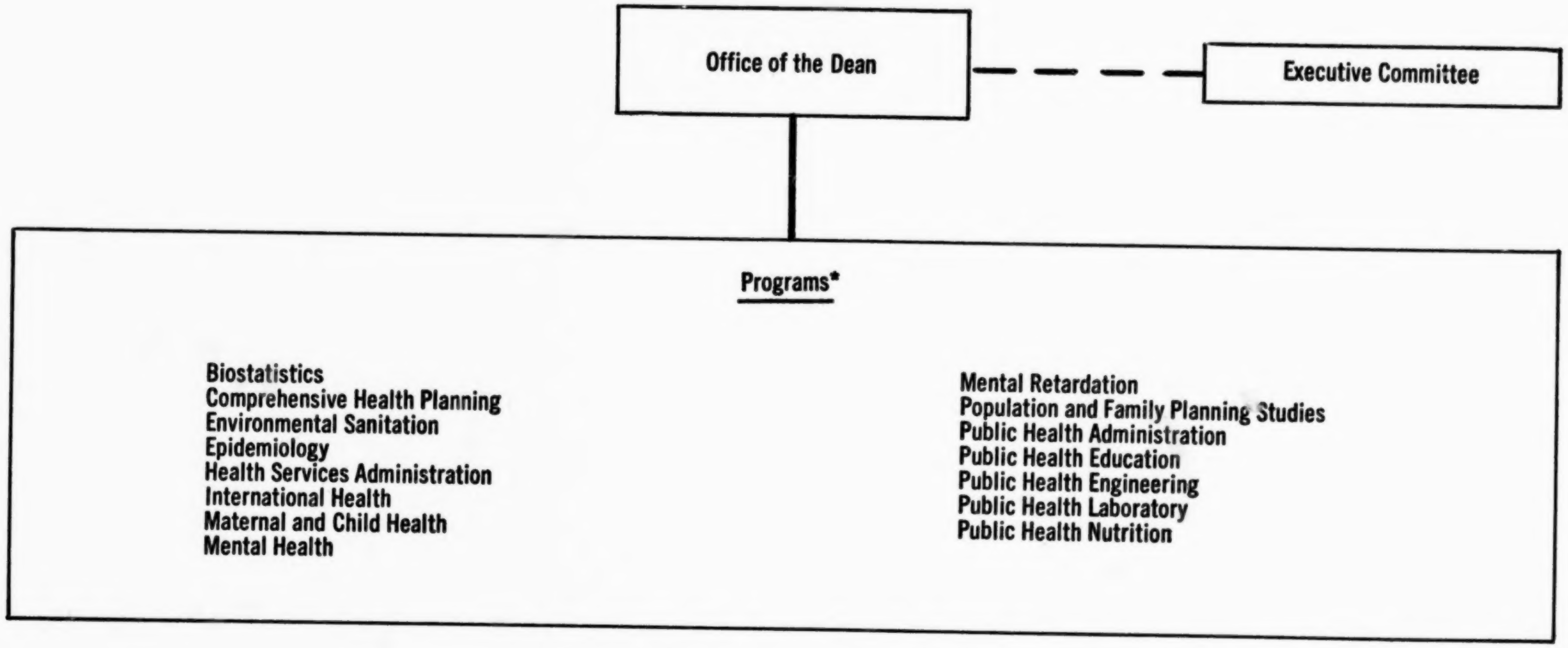
Establishment of separate departments may become necessary in the future if the School grows too large for its present structure.

Instructional Programs

The World Health Organization defines a school of public health as follows:

> An institution with adequate resources which, in addition to research in public health and

SCHOOL OF PUBLIC HEALTH


Office of the Dean
Executive Committee
Programs*
Biostatistics
Comprehensive Health Planning
Environmental Sanitation
Epidemiology
Health Services Administration
International Health
Maternal and Child Health
Mental Health
Mental Retardation
Population and Family Planning Studies
Public Health Administration
Public Health Education
Public Health Engineering
Public Health Laboratory
Public Health Nutrition

* Programs in the School of Public Health involve instructional, research, continuing education and community service activities. The School has no departments.

SCHOOL OF PUBLIC HEALTH

Degree Programs:
Existing: Master of Public Health; Master of Science.
Projected: Doctor of Public Health with emphasis in Health Education; Doctor of Philosophy in Public Health with emphasis in Biostatistics and Epidemiology.

	Actual		Projected	
	1963-64	1968-69*	1972-73	1975-76
Student Majors (Fall):	4	83	110	140
Undergraduates	—	—	—	—
Graduates	4	83	110	140
Student Credit Hours (Fall)	122	1,153	1,575	2,035
Graduates (Degrees Awarded):				
Masters	—	28	45	55
Doctorate	—	—	6	15
Certificate	—	1	5	5
Faculty and Staff (FTE):	9	91	155	160
Faculty	4	17	35	40
Civil Service	1	3	5	5
Federally Funded Positions	4	71	115	115

* Data on graduates for 1967-68.

> service to the community, provides a full-time course lasting not less than one academic year, or its equivalent, covering the subjects essential to the understanding of the various problems of public health and the concepts, organization and techniques required for dealing with them, and which is open to members of the medical and allied professions seeking qualifications in public health.

The American Public Health Association, which accredits schools of public health, accredited the University of Hawaii School of Public Health in 1965 and re-accredited it (required for new schools) in June 1967. There are only 15 schools of public health in the United States and two in Canada, but because of the continuing shortage of trained public health people and the increase of candidates entering the field, two to four more are being developed. The University of Hawaii School is the only American school with major commitments to serve the Pacific area.

The professional degrees in public health are the Master of Public Health (M.P.H.)—in Canada, the Diploma in Public Health (D.P.H.)—and the Doctor of Public Health (Dr.P.H.). Traditionally, M.P.H. candidates have been health practitioners—physicians, dentists, veterinarians, nurses, sanitary engineers, and other personnel in the health or related professions with a number of years' experience. For these individuals, the program may be completed in one year, but candidates lacking this experience must pursue a course usually requiring two years. The first year is spent in the basic curriculum essential in the training of all students in public health. Those continuing beyond this point emphasize specialized courses in their field of major interest.

Field training is required of virtually all students in the School and is organized under various forms and with different durations depending on the needs of the student. The School has outstripped the resources of Hawaii for field training and regularly sends students to agencies in the West Coast states, other Pacific islands, and Asian settings where properly supervised, appropriate experiences can be provided through affiliate and clinical faculty appointments. The duration of the field training usually varies from three weeks to three months, depending on the prior experience and goals of the student.

Faculty resources now available and expected in the near future make it timely to begin planning to extend the professional degree work up to the Doctor of Public Health (Dr.P.H.). The first field in which there will be sufficient strength for such advanced specialization is public health education.

The M.S. and a planned Ph.D. are intended for persons desiring intensive research and academic training in specific health subjects. Although there are needs in the field for professional persons holding the doctorate in several of the areas represented in the School, current and expected faculty development make it logical to plan for a Ph.D. in Public Health with emphasis on a combined program of biostatistics and epidemiology. It will be designed primarily for candidates who have an M.S. in biostatistics and wish to continue studies in that field, or for physicians interested in epidemiology who are enrolled in the three-year General Preventative Medicine residency program, accredited in June 1968, for emphasis on either epidemiology or international health. These physician candidates preparing for an academic career will take an M.P.H. or M.S. plus two or more years in the Ph.D. program, emphasizing epidemiology.

Physicians in the three-year General Preventative Medicine residency program who are not preparing for an academic career will take this residency as an M.P.H. plus two years of supervised field work and research in epidemiology or international health.

In addition to its degree programs, the School teaches the courses in public health for students in the School of Medicine, participates with the School of Social Work in a joint teaching program, teaches courses for sanitary engineers registered in the College of Engineering, and is developing complementary programs with the School of Nursing.

With students as diverse in background and goals as the student body of the School of Public Health, the key to academic program guidance lies in counseling by balanced program committees which are responsive to the current academic needs of the students, to the special requirements of some of the sources of traineeship support, and to the employment realities to be faced by the graduates. Each student is advised by his program committee, consisting of at least three faculty members, one of whom must be outside the student's area of major interest. This system is very expensive in faculty time but is most responsive to the needs of the individual student.

The School is actively supporting and carrying on continuing education programs jointly with community agencies, the East-West Center, and other University departments. In conjunction with the schools of public health of the University of California at Berkeley and Los Angeles, Loma Linda University, and the Western Federation of the American Public Health Association, the School participates in a cooperative program to serve some of the continuing education needs of public and private agencies in the Western states, Hawaii, Guam, American Samoa and the Trust Territory of the Pacific Islands. These programs are available to all public health workers and have been conducted in the field and on the campus.

Research

Research activities of the School have been limited by critical shortages of office and laboratory space and facilities. Thus far the faculty has given first attention to the needs of the student body and has generated more training grants than research projects. By 1975-76, the School's research activities will have been considerably expanded because of additional space in buildings now under construction. The doctoral programs will be in full operation. In conjunction with the School of Medicine, joint research and service projects will be underway in tropical medicine, nutritions, mental health, international health and other areas. The School will make a major research effort in the area of health information retrieval systems, where defects in current practice are serious stumbling blocks to progress in comprehensive health planning and health services administration.

The School shares many joint appointments with the Pacific Biomedical Research Center (PBRC) and the Water Resources Research Center (WRRC). Faculty members of the School utilize laboratory facilities and computer time of the PBRC and the WRRC. Members of the School provide data, especially demographic information on the Pacific peoples, to the Social Science Research Institute (SSRI), and utilize the SSRI data processing facilities for research projects of the School. (The programs of these research units are discussed in Chapter 18.)

Service

The School expects to continue to play an important role in the international programs of the East-West Center, the Agency for International Development, the U.S. Office of Education, the Peace Corps and national foundations interested in Asia and the Western Pacific. Faculty members will continue their present consultative services to the Trust Territory, American Samoa, Guam, the World Health Organization and the South Pacific Commission.

Within the University, the School will provide consultative and advisory services to the University Student Health Service program and cooperate with the Division of Continuing Education, largely in programs arranged by its Conference Center.

Faculty Development

Because of the broad nature of public health and diversity of skills required in its teaching, the faculty of the School will continue to build relationships (through joint appointments where appropriate) with the departments of Geography, Economics, Political Science, Psychology, Sociology, Anthropolgy, and others.

Exchanges of faculty with schools of public health or other institutions in Asia and the Pacific will be instituted through support of grants from private foundations. The China Medical Board of New York has provided $120,000 for a period of three years. The School expects to implement this program in the 1968-69 academic year.

Whenever funds are available, such as for WHO and East-West Center grantees, field assignments in Asian settings and working with faculties of schools of public health, have been and will be programmed.

Developments Under Academic Development Plan I

1. School established in 1965; accredited October 1965; re-accredited June 1967.
2. M.P.H. and M.S. degree curricula established.
3. Courses serving medicine, engineering, nursing and social work created.
4. Service programs conducted for Hawaii and Pacific island communities.

Projected Developments Under Plan II

1. Establish degree of Dr.P.H. with emphasis on health education.
2. Establish Ph.D. in Public Health with combined program of biostatistics and epidemiology.
3. Increase research effort, especially to develop health information retrieval systems.

Chapter 14: SCHOOL OF SOCIAL WORK

Purposes and Objectives

The School of Social Work has a primary obligation to help Hawaii meet its social welfare responsibilities through three programs: (1) to educate social workers to perform their professional activities; (2) to conduct research on social problems and services; (3) to render community service in the School's professional field.

Social work as an academic discipline is concerned with human beings and their welfare in a complex society. The social workers, in practice and research, concentrate on problems of breakdown in human relationships. In pre-industrial societies, social malfunction in people's lives was usually coped with, and sometimes remedied, through traditional institutions, such as the extended family or a church, or simply through the spontaneous working of social custom, such as help from neighbors or the immediate community. Modern social work theory holds that an individual experiences himself as a social problem because of faulty heredity, disease or various environmental causes: forces whose origin is external to the individual, in the sense that they spring from stress-situations in the family, resulting from death, divorce, difficulties about employment, etc. The breakdown may occur also because of internal and external forces in combination, with the result that the individual becomes unable to maintain himself in his everyday relationships, his work and his normal social roles.

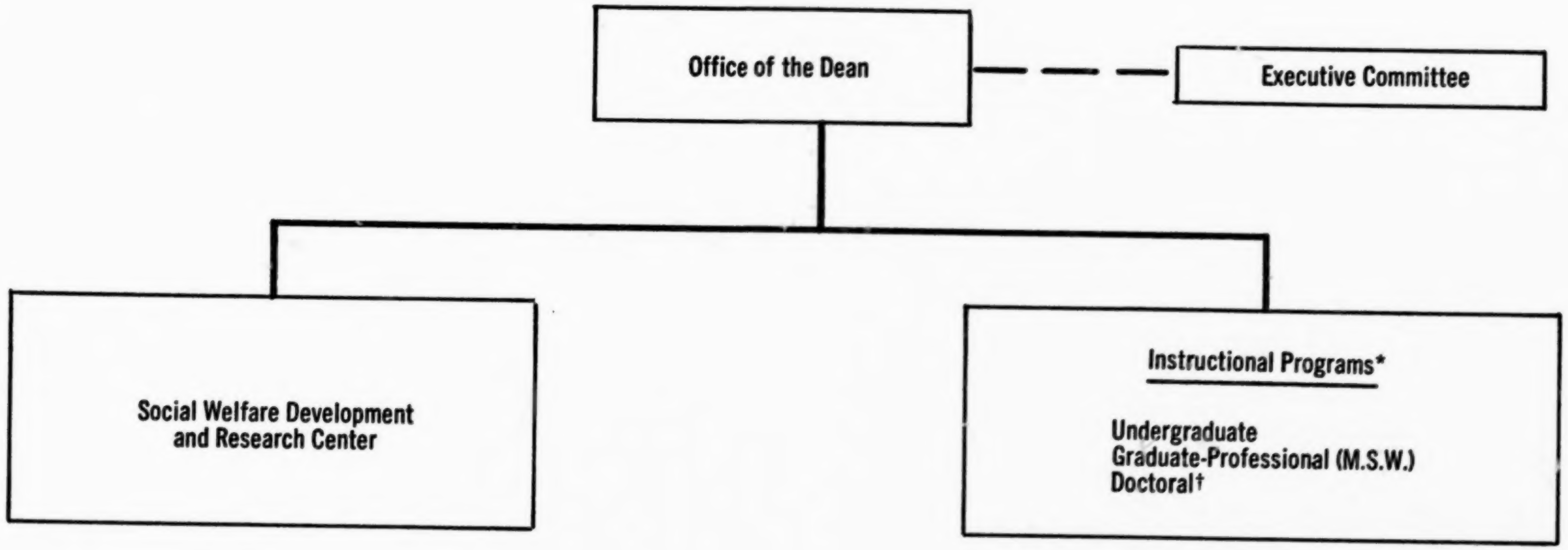
The fundamental tasks of the profession comprise not only the provision of services and resources to restore social functioning, but also the prevention and control of the conditions which have interfered with social functioning. The application of preventive or remedial services may extend beyond the treatment of individuals to working with social groups and whole communities. To achieve these further goals, social work practice may be carried on independently, but at other times collaboratively with related disciplines and professions. The immediate aim is always the same, to make the lives of human beings more bearable and socially productive. A more comprehensive and ambitious goal is to assist individuals, groups and community members to modify the social structure insofar as it controls the quality of human relationships, and by so doing improve the total environment, through the evolvement of specific institutional reforms.

Social work services are provided in a variety of community settings, such as the family and child-welfare agencies, public welfare departments, psychiatric and general hospitals and clinics, courts and correctional institutions, community centers, settlements and youth organizations. More recently, social workers have been employed in poverty programs, urban renewal, city planning and public housing.

The basic professional preparation for social work practice is a two-year program of classroom instruction and supervised field practice leading to the Master of Social Work (M.S.W.) degree. The School of Social Work of the University of Hawaii is one of 73 accredited schools in the United States and Canada. As the only school in the central Pacific, it has a special responsibility for professional education, research, and service for Hawaii, the Trust Territory and other nations in the Pacific.

Social work education has traditionally taught students to practice according to the methods of casework, group work or community organization. At the University of Hawaii, students have generally concentrated on casework but a few have elected the group work concentration, as at most social work schools. In its curriculum development discussed below, the School plans to offer one concentration which will include both case work and group work contents, and a separate concentration in community work.

SCHOOL OF SOCIAL WORK


Office of the Dean
Executive Committee
Social Welfare Development and Research Center
Instructional Programs*
Undergraduate
Graduate-Professional (M.S.W.)
Doctoral†

* Programs in the School of Social Work also involve research, continuing education, community service and international activities.

† Projected.

SCHOOL OF SOCIAL WORK

Degree Programs: Master of Social Work; Doctor of Social Work or Doctor of Philosophy (projected).

	Actual		Projected	
	1963-64	1968-69*	1972-73	1975-76
Student Majors (Fall):	40	115	195	260
Undergraduates	—	—	—	—
Graduates	40	115	195	260
Student Credit Hours (Fall)	687	1,658	3,050	3,895
Graduates (Degrees Awarded):				
Masters	20	45	90	130
Faculty and Staff (FTE):	7	30	55	65
Faculty	6	15	35	45
Civil Service	1	4	5	5
Federally Funded Positions	—	11	15	15

* Data on graduates for 1967-68.

Forces Making for Change

Three factors currently influence the development and direction of social service education in Hawaii, as throughout the nation: an increasing demand for professional social workers, with a very limited supply of personnel; swiftly changing social conditions; and revisions of professional functions, because of altered theoretical framework and basic concepts, with resultant changes in education for the profession.

There is a widening gap between needed and available social work manpower. The 1965 report of the HEW Departmental Task Force on Social Work Education and Manpower estimated that by 1970 more than 100,000 professionally qualified social workers (master's degree) will be needed to staff agencies receiving federal financial support alone. Expanding services of voluntary agencies will also require more social workers. The 1967 report of the Hawaii State Commission on Manpower and Full Employment on "State Shortages in Professional and Technical Classes" says that the shortage in the social worker series is "common, real, and critical," and that it is "district, state-wide and nation-wide in scope." The report recommends that the School of Social Work be expanded to help meet the local manpower requirements.

The social changes of the past decade both on the mainland and in Hawaii hardly need documentation. Increases in juvenile and adult delinquency, the overt reactions to racial injustice evidenced in riots, and other major problems resulting from urbanization are familiar to everyone. Social conditions underlying the domestic conflict, previously conspicuous only to the urban sociologist and the social worker, are now coming to the general attention of society—poverty, the effects of racial discrimination, the problems of mental illness—and the attitude of society has shifted to one of at least trying to "do something about it." Many professions are important to the amelioration of these problems, including social work, which has its own distinctive role to play.

A growing realization of the urban crisis has precipitated a reexamination of the social welfare services, especially their operative means and goals. The self-critical studies have led not merely to the reorganization of some social service institutions and the creation of new ones, but also to the development of new concepts and approaches. For example, social work agencies now tend to place greater emphasis on methods of prevention, initiating new approaches to treatment, such as working with the family as a group, or extending services to groups of clients, even in agencies that traditionally used the individual interview. Especially noteworthy are some of the projects for community development.

Instructional Programs

Master's Program—Basic Professional Education

To meet manpower needs, the School has taken active steps to increase its enrollment. In 1968-69, the enrollment in the master's program is 115 students, a threefold increase in a five-year period. A further expansion of 20 additional students per year is planned until the School reaches a maximum of 300 in the master's program. Since it is anticipated that at least half of the students will be from Hawaii, the enlarged program will be making a substantial contribution to meeting manpower needs of this state.

A significant innovation developed in the past year has to do with teaching the methods of practice. Group work and casework, heretofore taught as separate specializations, are being combined; students and graduates will be expected to be able to provide service to clients by either method. In addition, students in this concentration of the two methods will be expected to have knowledge and some exposure to doing community work. The alternative concentration is community work itself. Students specializing in this area will be expected simultaneously to be able to provide services to communities and have an understanding of the treatment of individuals and groups as well.

Only a beginning has been made thus far in developing a concentration in community work. In 1966-67 one student was admitted for this concentration of class and field work; this year there are three. In common with other schools where community work has been introduced, the faculty needs to give further thought to the content and skill needed in this varied field, which encompasses planning and policy making within neighborhoods, and the integration of welfare services hitherto rendered by autonomous agencies. The School is recruiting for a specialist to help develop this concentration. As the faculty works at defining the content of this area, it will draw on the resources of other departments and schools within the University.

The basic curriculum requirements stipulated by the National Council on Social Work Education (social welfare policies and services, human behavior and social environment, methods of social work practice, research, administration) will be followed, but the School will place considerable emphasis on content that will help students learn how to assess social welfare resources, how to work with others to better social conditions and welfare programs, and how to analyze institutions offering social work services and act towards their improvement. The anticipated changes in curriculum will require some reorganization of courses, addition of new ones, some dropping of old. Obviously it will also require major changes in the field instruction component.

Field Instruction in the Master's Program Expansion of the Master of Social Work program is contingent upon availability of field work placements. Federal financing has enabled the School to employ faculty to teach units of students in the field. This augmentation of the field staff, made possible by social work agencies, has taken care of the expansion thus far. It is anticipated that the federal financing will continue, though current cutbacks in appropriations may not provide the additional positions essential for the School's expansion needs in the immediate future. For this reason, in order to use field instructors to develop experimental programs, and also if possible to establish school-operated field teaching centers (as is being tried by a few schools on the mainland), it is important that some additional field teaching positions be funded by the University. A Director of Field Instruction was appointed in 1967. This position should enable the School to proceed with the developments mentioned, and to plan for continuing education of field instructors so that they can teach in accordance with the changes in the curriculum.

New settings for field practice will need to be explored, particularly for the development of the community work concentration. The use of the newer organizations, such as the federal Office for Economic Opportunity (OEO), is as yet untapped and may provide good resources..

An Undergraduate Program in Social Work

The projected growth of the M.S.W. program will not in itself meet the constantly expanding manpower needs. The School is therefore planning an undergraduate major in social welfare in the context of a liberal arts curriculum. This program would prepare graduates for many entry-level positions in social welfare, particularly as aides or technicians. Many persons with a bachelor's degree are now so employed by agencies, and the major would provide the agencies with better qualified people who, with the addition of specially planned continuing education, could successfully perform various important agency tasks. The program would also serve as a base for preprofessional education. Some of the courses in social welfare would be open to students of other majors.

One step has been taken. This School last year established a committee on undergraduate education for human services, including faculty from Home Economics and American Studies, Public Health, Medicine and Nursing, in addition to representatives from welfare agencies in the community. The committee, expanded to include other departments such as Education and Psychology, is continuing to explore approaches to a new curriculum.

Training for Non-Professional Levels of Work

As another way of meeting Hawaii's need for manpower in its rehabilitation, corrections, health, welfare and other human service agencies, so-called "New Careers" programs are being established. These programs are intended to prepare educationally disadvantaged persons for positions in the para-professional and sub-professional classes. To carry out these programs, provision is to be made for instruction which will include both training for entry-level positions and job advancement. While the immediate objective is the education of persons to fill positions at non-professional levels, some students are likely to move on to graduate school and then to fully professional positions.

The community colleges on Oahu, in collaboration with the State Department of Personnel Services, are now assuming responsibility for developing a curriculum and providing instruction for the New Careers program. The School of Social Work is studying ways of becoming integrally related to the community colleges and other elements of the University system in the conduct of this program.

Doctoral Program

The School plans over the next five or six years to evolve a program leading to a doctoral degree. By about 1973, the faculty will exceed 40, all but a few teaching at the graduate level and undertaking research. At that stage the additional staff, library and other materials necessary to support a doctoral program would be relatively small. The inclusion of the program will make the School more attractive to young, dynamic faculty with advanced graduate work and will put the School in a more competitive hiring position. The local availability of a doctorate will encourage selected social workers in Hawaii to make contributions to the state which would otherwise not be possible.

Continuing Education

The inherent responsibility of the School to offer continuing education for practitioners in its field is made more urgent by the rapid and fundamental changes occurring in social welfare theory, institutions and programs. Continuing education in the form of workshops and institutes, as well as the more formal classroom presentation, offers the most effective way of bringing new knowledge and new techniques to both fully qualified professionals and to sub-professionals seeking to develop their careers. The School has requested funds from the National Institute of Mental Health to staff a continuing education program as an integral part of its operations.

The Youth Development Center was transferred to the School of Social Work in September 1967. Formerly supported by a federal grant, it is now funded by state general funds. The Center provides continuing education to staffs of social welfare institutions working in its special area. It is expected that the Center as part of the School will identify problems for research in this area and work on research projects with other faculty of the School and of related departments in other schools and colleges.

International Dimensions

The location of the School in the Pacific area and the presence of the East-West Center gives the School unusual opportunities to develop a program of significant international dimensions. Recent studies show the urgent need for American schools of social work to supply an international perspective in the basic professional curriculum, and to identify those elements of the knowledge and practice of the profession which are internationally applicable. The geographic focus should be made on countries of Southeast Asia and islands of the Pacific, regions with which other units of the University are already involved. The School must assume responsibility for direct services in consultation, training, research and exchange programs.

In line with University policy, the School will continue to accept students from other countries. It proposes to develop short-term workshops, institutes and seminars for personnel from other countries as part of the program of continuing education. It is anticipated that personnel at various levels of agency or organization operations will be interested. Activities of an international nature will be developed in harmony with University policy and as faculty resources develop, so that the basic program of the School will not be weakened by faculty absences.

Research

It is most important that the research component of the School be strengthened. The program should be designed to achieve a variety of goals. The professional social worker should be equipped to assist and guide others in developing significant hypotheses and defining researchable problems, as well as to conduct investigations himself. Since there is always an excess demand for the use of research facilities, it is important that members of the profession be well qualified to identify promising areas for study and to do some of the preliminary investigation, so that the best use will be made of the limited resources. Research concentrated on social work practice particularly is highly necessary in view of the developing needs of "practice theory" in this field. Such investigation must be conducted in conjunction with social work agencies or social work departments of hospitals, schools, mental institutions, etc. Collaboration with social agencies in the analysis and evaluation of agency programs should be encouraged. The establishment of a doctoral program is desirable in order to attract additional research faculty and offer advanced training in methodology. To facilitate the accomplishment of research aims, it is planned that the School will establish a research center. At the moment, the sole campus facility available for the faculty of the School is the Youth Development Center, whose primary mission is service through continuing education, rather than research.

Service

The School plans to work more closely with other units of the University, particularly expanding its relationships with other schools in the College of Health Sciences and Social Welfare. Already it has collaborated with Public Health in a course on social welfare policy, offered to students of both schools. It has also helped develop programs on alcoholism, gerontology, maternal and child care, and has worked with the School of Medicine in the Regional Medical Program. Further collaborative efforts are planned, particularly concerning the concentration on community work and social work relevant to medical and nursing practice.

The field experience component of its curriculum brings the School of Social Work into continuing relationships with the larger community. Faculty members serve on planning bodies and as consultants throughout the state. Recognizing the special needs of Hawaii, the School intends to play an increasingly active and wide-ranging role by helping the state and its communities to identify social needs and by evaluating the effectiveness of ongoing programs, as well as proposing new programs when changing conditions uncover new needs.

Developments Under Academic Development Plan I

1. Progressed toward establishment of an undergraduate major in social welfare.
2. Reviewed and redefined objectives for master's program and established a concentration on community work.
3. Increased opportunities for field-instruction and appointed a director of field-instruction.
4. Substantially increased enrollment in master's program.
5. Appointed research professor to strengthen research component.
6. Established Youth Development Center.

Projected Developments Under Plan II

1. Review master's program curriculum and make necessary changes to meet recast objectives and further develop community work practice.
2. Continue work with interdisciplinary committee to develop a base for the "human services" professions and to offer a major in social welfare built on this base.
3. Emphasize faculty research and develop plan for a doctorate program; consider proposal for establishing a research center.
4. Organize a comprehensive program of continuing education.
5. Increase contribution to the University's international activities.
6. Collaborate with community colleges and other branches of University to develop integrated aims and procedures for community betterment.

Chapter 15: GRADUATE SCHOOL OF LIBRARY STUDIES

Purposes and Objectives

The Graduate School of Library Studies was established in 1965 to train librarians for service in all types of libraries in Hawaii, the mainland United States, and in the Asia-Pacific area.

The School was accredited by the American Library Association in 1967 and is one of 44 accredited graduate library schools in the U.S. and Canada. It offers a program of instruction designed to prepare librarians for beginning professional positions in all types of libraries. A sequence of specialized courses to prepare personnel for school libraries is offered, and also a unique program of courses in Asian librarianship designed to prepare Asian personnel for service in Asia and others for work in American research libraries.

Staffing needs in the libraries of Hawaii are substantial now and will increase in the future. The *Initial Comprehensive Library Planning Study for the Hawaii State Library System,* completed by Booz, Allen and Hamilton in April 1968, projects a demand for 275 professional school librarians and 125 public librarians by 1976, and corresponding figures of 540 and 158 by 1980. Approximately 25 per cent of the present school librarians and 40 per cent of the public librarians in Hawaii are 50 years old or older. Seventy-five per cent, or 150, of the 200 school librarians now employed lack full professional training. The academic libraries, including those of the community colleges, will require a steady supply of beginning professional librarians to replace retirees and fill newly created positions over the next ten years.

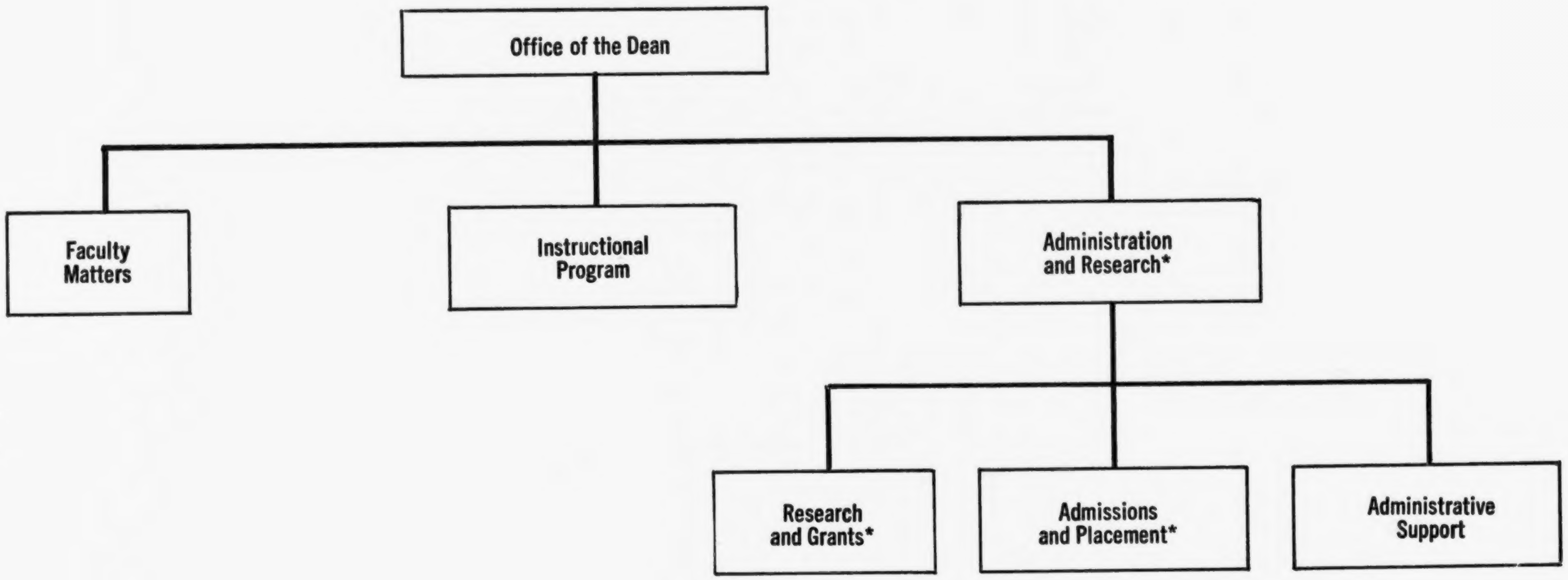
The need for trained librarians in Asia and the Pacific is also continuing and growing. Hawaii fills a unique role in training librarians for service in these areas and in training personnel for work in specialized Asian collections in mainland research libraries.

Developments in audio-visual media and in the application of computers to librarianship have moved so rapidly in the last decade that practicing professional librarians require periodic retooling and updating of skills. The Graduate School of Library Studies has, and will continue to schedule, summer institutes and evening and summer courses to meet this need for continuing education.

Development Programs

The School has been in existence for such a short

GRADUATE SCHOOL OF LIBRARY STUDIES


Office of the Dean
Faculty Matters
Instructional Program
Administration and Research*
Research and Grants*
Admissions and Placement*
Administrative Support

* Proposed

GRADUATE SCHOOL OF LIBRARY STUDIES

Degree Programs: Master of Library Studies; Doctor of Philosophy (projected).

	Actual		Projected	
	1963-64	1968-69*	1972-73	1975-76
Student Majors (Fall):	ESTABLISHED 1965	121	225	310
Undergraduates		—	—	—
Graduates		121	225	310
Student Credit Hours (Fall)		1,551	2,500	3,400
Graduates (Degrees Awarded):				
Masters		52	110	155
Faculty and Staff (FTE):		10	35	45
Faculty		8	30	40
Civil Service		2	5	5

* Data on graduates for 1967-68.

period of time that the high rate of growth over the past three years cannot be regarded as a normal long-range pattern. It is expected that growth will level off at about a 10 per cent annual rate of increase by 1970-71 and that enrollment will exceed 300 full-time equivalent graduate students by 1975-76. In order to achieve and maintain a student-faculty ratio of 10:1, annual increases in staff are required to bring the teaching faculty up to a total of 40 positions by 1975-76.

As new faculty are added, continuing emphasis will be given to the program for training school librarians. The U.S. Office of Education has recently approved in principle, but not yet funded, the first two years of an eight-year program to provide fellowship support through the Graduate School of Library Studies for the 150 school librarians in Hawaii who presently lack full professional training.

Recent progress in information storage and retrieval and in the use of computers in library systems and processes is such that librarianship is at a turning point. The Graduate School of Library Studies currently offers a limited amount of course work in this area but is hampered by the lack of experimental or ongoing applications in Hawaii library systems. As new faculty members are appointed, strength will be added in the area of computers and documentation so that graduate training can be provided to students and a core of library/computer expertise will be available to provide research and development assistance for the library systems of the state.

Continuing emphasis will also be given to the School's unique Asian librarianship program. The School, in addition to training East-West Center grantees, is presently teaching Okinawan personnel under an Army program. It is expected that the faculty of the School will develop a role as consultants to Asian and Pacific library systems. Plans are also being made to develop a sister-school relationship with one or more library schools in Asia and the Pacific.

An increased emphasis will be placed on faculty research, especially in the areas of Asian and Pacific library problems, the development of statewide computer facilities to provide centralized processing and information systems for all types of libraries in Hawaii, and studies based on the unusual administrative and service aspects of the state library system in Hawaii.

The School will continue to provide opportunities for continuing education for practicing professional librarians in Hawaii by means of summer institutes, evening and Saturday courses, and short-term conferences during the academic year.

The School will continue to depend upon the Graduate Research Library as a working laboratory and for specialized book collections and will continue to recruit part-time teaching staff from the University library system. The present administrative relationship, under which the Dean of the Graduate School of Library Studies reports to the Vice President for Academic Affairs, was initiated in July 1968. This seems to be a satisfactory administrative arrangement and a change is not planned at this time.

Developments Under Academic Development Plan I

1. In 1965 established Graduate School of Library Studies; formulated policies for library training serving all types of libraries in Hawaii, mainland U.S., Asian-Pacific area.
2. Organized curriculum for preparatory professional training, specialized courses for school librarians, program in Asian librarianship and research in Asian contexts.
3. Projected long-range staffing needs.
4. Organized program for continuing education focusing on new audio-visual media and computer applications.

5. School accredited in 1967 by American Library Association.

Projected Developments Under Plan II

1. Expand services and staffing in accord with long-range projections, with leveling off to approximately 10 per cent by 1970-71.
2. Continue emphasis on training school librarians.
3. Strengthen graduate offerings in computer applications, encouraging research in library technology.
4. Continue emphasis on Asian librarianship; provide consultant services to Asian and Pacific library systems; encourage research in area subjects.
5. Organize continuing education programs.
6. Develop doctoral program.

Chapter 16: COLLEGE OF TROPICAL AGRICULTURE

Purposes and Objectives

The College of Tropical Agriculture well exemplifies the functions of the University of Hawaii as the land-grant college of the Pacific. It operates within the system of land-grant colleges of agriculture which have applied the scientific method to the improvement of agriculture and rural living, taken their discoveries to the farmer through an extension service, and thus have educated succeeding generations of agricultural researchers and teachers. The contribution of this national network of research-extension-teaching to the enormous increase in the productivity of American agriculture and improved levels of living in rural America over the past century is widely appreciated, to a point where other nations increasingly seek to create similar networks. The central purposes of the College are as follows:

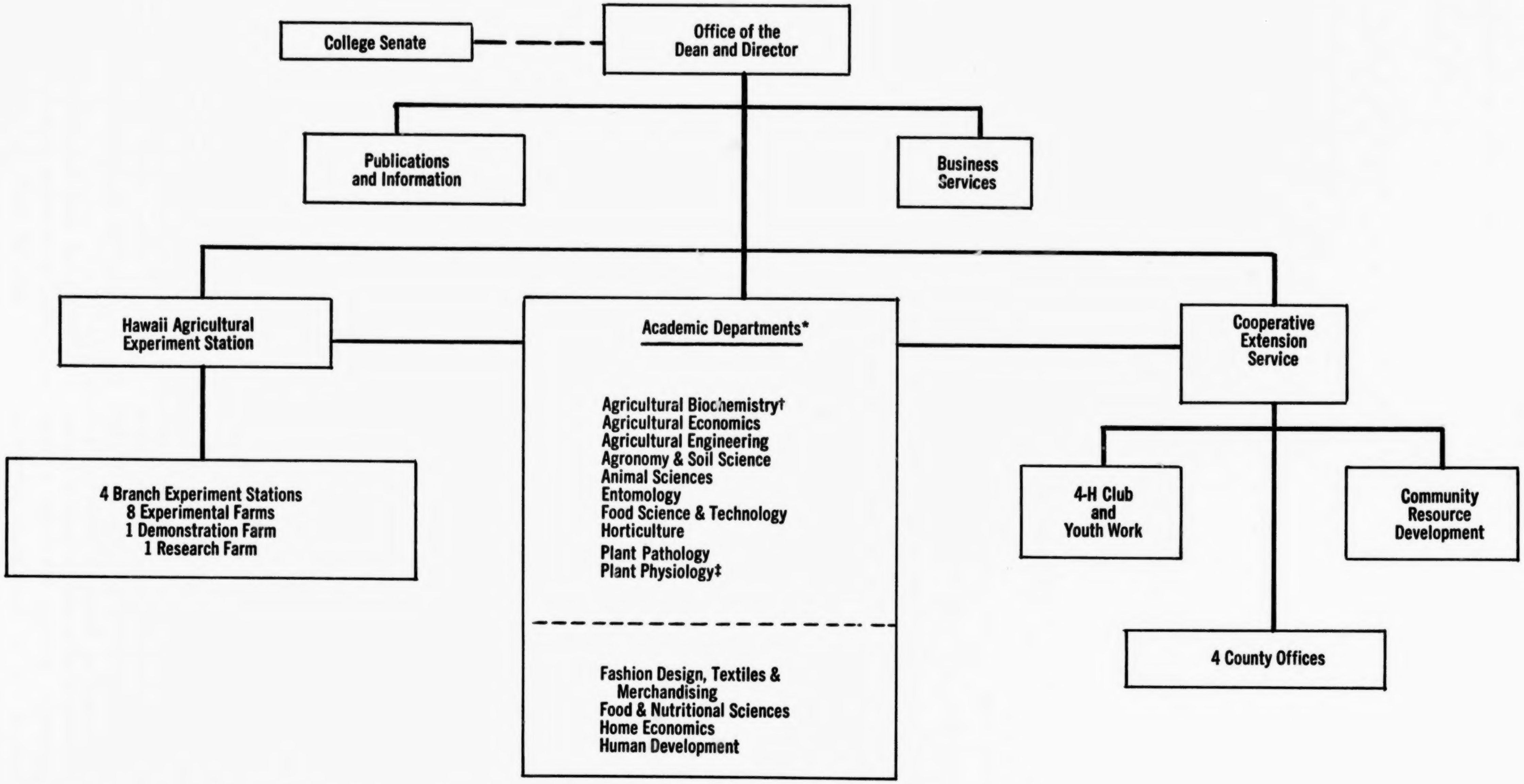
1. To conduct integrated research and educational programs that bear directly on the production, processing, marketing and utilization of agricultural products and the development and improvement of family and community living.
2. To maximize its contribution to Hawaii by concentrating fundamental research on those biological, physical and behavioral sciences which form the basic agricultural sciences, and applied research on human and natural resources, agricultural products and technology judged to provide the greatest economic and social potential to the state.
3. To provide undergraduate instruction leading to the B.Sc., preparing some students for positions in agricultural and commercial enterprises, or in government service, and preparing others for graduate studies.
4. To provide graduate instruction for prospective researchers, teachers and advanced specialists in agriculture.
5. To offer public service and continuing education to agriculturists and others throughout Hawaii, as well as to persons who will work in other tropical areas of the Pacific and Asia.

Hawaii's function in the American system of federally supported land-grant agricultural colleges is inherently unique, since this is the only College of Tropical Agriculture in the United States—indeed, one of the few in the world. Products of both tropical and semi-tropical agriculture can be cultivated and studied in Hawaii as in no other state. Hawaii's richly varied topography, rainfall and soils make it feasible to work with a range of agricultural commodities of potential economic and scientific interest to which it is difficult to set limits. It is not an exaggeration to say that virtually anything can be grown in Hawaii—at one or another altitude.

Indeed, this embarrassment of riches is one of the difficulties of devising a program of agricultural research, extension and teaching in Hawaii. In most states the question of priorities, of deciding what to concentrate on, is narrowed by the climate and terrain of the state—by what can be grown outside hothouses and laboratories. In Hawaii, the choice of program must be established by other criteria.

Another unusual condition has hitherto shaped the development of the College of Tropical Agriculture. Typically, the land-grant institution in a state has been the center for studying the chief crops of the area. In Hawaii, for a variety of reasons—notably because the College was established only in 1907, long after sugar and pineapple had already become the largest "industries" of the Territory, with their own research facilities—this did not happen. Only now, with the marked reduction in the program of Pineapple Research Institute and the transfer of its campus building to the University, is it feasible for the College to undertake significant programs in pineapple.

COLLEGE OF TROPICAL AGRICULTURE


College Senate
Office of the Dean and Director
Publications and Information
Business Services
Hawaii Agricultural Experiment Station
4 Branch Experiment Stations
8 Experimental Farms
1 Demonstration Farm
1 Research Farm
Academic Departments*
Agricultural Biochemistry†
Agricultural Economics
Agricultural Engineering
Agronomy & Soil Science
Animal Sciences
Entomology
Food Science & Technology
Horticulture
Plant Pathology
Plant Physiology‡
Fashion Design, Textiles & Merchandising
Food & Nutritional Sciences
Home Economics
Human Development
Cooperative Extension Service
4-H Club and Youth Work
Community Resource Development
4 County Offices

* All with teaching, research and extension programs, except those noted.
† Teaching and research programs only.
‡ Research program only.

COLLEGE OF TROPICAL AGRICULTURE

Academic Departments: 14 (see organization chart on preceding page).
Degree Programs: Bachelor of Science (4 fields); Master of Science (10 fields); Doctor of Philosophy (4 fields).

	Actual		Projected	
	1963-64	1968-69*	1972-73	1975-76
Student Majors (Fall):	462	666	1,055	1,235
Undergraduates	327	468	700	740
Graduates	135	198	355	495
Student Credit Hours (Fall)	3,377	5,445	9,000	10,340
Graduates (Degrees Awarded):				
Bachelors	55	101	155	190
Masters	29	40	80	125
Doctorate	6	5	15	25
Faculty and Staff (FTE):	345	419	555	655
Instruction	29	47	85	95
Research: HAES	209	254	320	395
Extension: CES	107	118	150	165

*Data on graduates for 1967-68.

Agricultural production has importance in Hawaii as a relatively large and stable sector of the Island economy. The College will continue to serve this sector not only in traditional ways but also in a new area. A larger portion of its talents and resources can be directed towards solving environmental problems related, for example, to pollution, preservation of beauty, human resource development and to improving the quality of living for rural and urban populations.

Integrated Programs

The general principle of academic development for the College is to organize its chief programs around the agriculture of the state and the human and natural resources selected by the College for long-term study. In helping the people of Hawaii to make the most effective use of the state's resources, the College will concentrate on products of greatest value or potential value in this state, and on the resources necessary for economic and social development. Research in field and laboratory will center on these commodities and resources. Extension will bring the results of this research, including advanced technology, to local agricultural and business enterprises. Such research activities should serve to organize and illustrate the academic curriculum of the College.

This approach to program selection for the College of Tropical Agriculture is a particular application of the basic tenet of the University's development plan, that the University should maximize its contribution to this state—and to humanity generally—by concentrating on doing what it can do best in its setting. This application requires that the College analyze the resources and agriculture of Hawaii to ascertain, through the best judgment of its faculty and such other experts as it may consult, the commodities or resources most likely to bring maximum economic and social benefit to Hawaii. Such analysis considers the costs of working on a given commodity or resource as well as the projected benefits; it produces a set of priorities which guides the programming, budgeting and staffing of the College.

Systems Analysis to Set Priorities

The College has recently adopted a systems analysis approach, intended in a flexible way to coordinate its efforts in solving problems in agriculture and in natural and human resource development, so as to bring together specialists from various fields and disciplines without removing them from their departmental base. Analysis of the College's programs has to be comprehensive (to avoid omissions) and must use mutually exclusive categories for describing activities (to avoid duplication).

Each problem-oriented activity of the College (e.g., how to increase beef production, how to improve clothing design and manufacture) is to be examined to ascertain why research should be undertaken, what is already known and what needs to be known, how much time is necessary for significant research, and what College assets are required for the task. Nearly a hundred problem areas have been identified, ranging from soil resources to particular crops, including avenues for serving community institutions.

Criteria for Evaluating Priorities

Faced with the task of solving many problems, ranging in scope from human resource development to agricultural commodities, the College has adopted criteria to be used as guides in evaluating priorities.

These criteria are for the most part identical with those prepared jointly by the Association of State Universities and Land-Grant Colleges, and the United States Department of Agriculture.* They are as follows:

1. Extent to which activity meets state and national goals
2. Potential contribution to knowledge
3. Scope and size of program, considering area, number of people and units affected
4. Potential benefits in relation to cost
5. Likelihood of extensive and immediate adoption of results
6. Likelihood that information will not be available elsewhere
7. Feasibility of implementation and likehood of successful completion.

Cost (input) data needed for applying these criteria usually can be estimated with some realism, as can—with less assurance—the economic or social benefits (output) likely to result from a research activity. Many important program decisions by the College, particularly with respect to the conservation of natural resources and to human resource development, must rely largely on informed opinion rather than on readily quantifiable data. It is the responsibility of the College to provide or obtain the critical judgment which must suffice in lieu of hard facts.

Key to the effective functioning of the College is the rational setting of priorities, outlined above. Operating procedures are as follows. As the faculty and administration of the College determine that a commodity or resource should be studied because of its importance to the state and because the investigation is likely to be socially productive, an interdisciplinary research team would be formed. A program of research to fill in necessary knowledge—with respect to the genetics, physiology, breeding, environmental response, culture, fertilization, weed-control, pathology, productivity, harvesting, marketing, shelf life, etc. of a crop or other commodity—would be developed and funded over the period judged necessary for attaining that knowledge.

The teaching faculty of the College would utilize the knowledge gained from research to structure their specialized courses. Thus, a course in the principles of crop breeding would take many of its examples from the crops on the agenda of the Experiment Station, bringing research problems to the classroom, and taking the class into the experimental field and laboratory.

As new knowledge and methodology are tested out, they would be made available to agriculturists and allied businesses in the state. Much of this application of research results would be through the Cooperative Extension Service, dealing with individuals and groups of producers, processors, marketing agencies and consumers. Extension education, incorporating the newest research results, would be offered around the state by faculty and staff of the College at appropriate sites, such as county extension offices of the College, and at community colleges.

Not all of the College's resources will be deployed in solving specific problems, given priority by PPBS (Program Planning Budget System). Since the College also is responsible for basic research and broad programs of agricultural instruction, some of its staff at any time will be working on projects not immediately related to urgent problems of Hawaii's agricultural and human resources development.

There is no inherent contradiction here. Generally, members of the College staff not only would be engaged in a team effort to solve specific problems of high priority to the College and the state, but also would work on their particular research interests—like all scholars at the University. In any year appropriate portions of the College's budget would be devoted to opportunity-oriented and long-range fundamental research. Research scientists, because of their intimate knowledge within the discipline and their discerning observation, would seek new principles, new scientific methodologies and new knowledge, which, over time, would sustain the directed research programs of the College.

College Organization

The programs of the College are markedly interdisciplinary, and future development will make them more so. The College now consists of 14 departments based on subject matter specialization or academic discipline. In general, these specializations utilize methods of the physical, biological, social and behaviorial sciences to solve problems. The Extension arm of the College digests and systematizes relevant information generated in the College and elsewhere and presents it to the community.

Changing agricultural technology and changing social patterns, as well as the diversity of its tasks, make it imperative that the College structure its organization to keep pace with new and impending needs of the state. Implicit in this design is a unit which maintains excellence in its teaching, research and extension arms, and one which can readily mobilize its resources to meet a problem it proposes to resolve.

Reorganization of the Home Economics Department

Four departments of the College recently have been placed under the leadership of an assistant dean to improve, expand and fully coordinate the College's activities in the field of human resource development.

**A National Program of Research for Agriculture* (1966), a report prepared jointly by the Department and the Association.

The four departments are Food and Nutritional Sciences; Human Development; Fashion Design, Textiles and Merchandising; and Home Economics. These new departments will develop educational programs for a variety of specialized professions.

The major objectives of these departments are to provide research and professional education which can be used to improve family and community living. The scope is the life-span of the individual and his enduring needs for food, clothing, shelter and optimum human development and social relationships. The focus is upon both the individual and the setting in which his needs are fulfilled. The appropriateness of such a program at the University level is persuasive since, in contemporary society, an understanding of the potentialities of human beings requires the knowledge of specialists in the related fields of food and nutritional science, child development, family relationships and consumer economics.

Because human resource development attacks social problems along a broad front, involving not only the College of Tropical Agriculture, but other University units as well—such as the School of Social Work, Public Health, Sociology and the Social Science Research Institute—activities in this area will come under the review of an all-University Council on Teaching and Research in Human Development. The Council will examine University activities in this area to reduce duplication of effort and maximize its contributions to the community.

International Programs: Funding

Much of what the College will be doing in carrying out its principal objective of serving agriculture in Hawaii will be applicable elsewhere to tropical and semi-tropical agriculture around the world. Because of the particular interest of the University in the Pacific and south and eastern Asia, together with the presence of the East-West Center, there will continue to be many opportunities for the College to export its knowledge and expertise abroad.

In some cases the College may have occasions to do valuable work on problems of no immediate economic interest to Hawaii but of vital concern to the nation's goals. For example, rice is not now an important economic crop in Hawaii. However, it is the most important single food crop in the developing nations of Asia and the Pacific. The College has the competence to make a contribution to increasing rice production in the tropics. In deciding whether or not to undertake such projects, the College should apply the general guidelines adopted by the University as a whole: the project should not materially weaken the fundamental purpose of the College, which is to serve Hawaii; thus there should be some enrichment, some feedback to its research or instructional programs. In this connection, it is pertinent to recall that most of the crops of economic importance to Hawaii were brought here from abroad.

If financing and staffing are adequately provided, there need be little conflict between serving the state and serving the broader Pacific community. Conflicts develop chiefly when, for lack of staffing in depth, the departure of faculty members to overseas assignments temporarily impoverishes or disrupts the ongoing programs in Hawaii.

Short-term training courses for: (1) people going into foreign service assignments; (2) people in the Pacific Basin and Southeast Asia who need practical training in agricultural production, processing and marketing; and (3) persons in local communities with a need for continuing adult education have been, and will continue to be, a significant part of the program of the College of Tropical Agriculture.

General Education in the College

Undergraduate Instruction

Because of its relatively stable undergraduate population, the College can more readily enter into a program of innovation in the coming years. The College does not suffer from large classes, an exploding student population, or lack of qualified teachers. The ingredients for quality education are there—proper planning can make it a reality.

Quality education begins first with the teacher. Departmental faculty can continue to teach courses in their specialties, but courses and programs of study that cut across disciplines may very well be taught by selected members of the college faculty in whatever department they may be located. Examples of interdisciplinary courses and programs of study of this kind are statistics and experimental design, genetics and plant breeding, pesticide and pollution, conservation and land use, handling of tropical agricultural products, climatology and the physical environment, agricultural history, agricultural journalism, and forestry. It will be possible under such a system to select the best qualified instructor to teach the courses --in short, courses will be assigned to the individual teacher first and then to departments.

Like the other professional colleges of the University, the College emphasizes specialized courses for its own students and depends on the College of Arts and Sciences for general education courses. An exception is the course in international agriculture, currently given as an interdisciplinary course in the Honors Program. There are other opportunities for the College to contribute to the general education of the entire undergraduate student body of the University. One opportunity is to nominate some of its present undergraduate courses for inclusion in the electives of the general education core, insuring that the courses are sufficiently broad-gauged and appropriate for students not intending to specialize in the field. Courses in the principles of nutrition, family relationships, entomology, horticulture and plant pathology are possible examples.

Another opportunity is to develop general courses on conservation, or the use of soils in urban as well as in rural environments, or the creation and maintenance of a "natural" environment in a metropolis such as Honolulu. One or more courses of this nature might parallel and complement the interdisciplinary courses on "Man and the Arts" and "Man and Society."

The College does an adequate job of transferring information to its students, though it can and will do more. It also needs to develop in its graduates an awareness of the food and human needs of the world. More important, it should develop confidence in students to utilize their knowledge to solve these problems, by emphasizing the relevance of its subject matter to the needs of people, thus bridging the gap between textbook and reality. A student organization called the Hunger Fighters is already doing this. Summer programs that would take students to problem areas in the state and Pacific region would add much to the present program. Similar programs are being developed in the field of Human Resource Development.

Graduate Instruction

About a third of all students enrolled in the College of Tropical Agriculture are graduate students; in some of the agricultural science departments graduate students make up two-thirds of the enrollment. Important consequences of this large graduate enrollment in the College are smaller classes, lower student-faculty ratio and more frequent contact between students and faculty, both at the graduate and undergraduate levels of instruction.

The graduate program serves two important functions; first, by its very presence, it enriches the undergraduate curriculum and makes for a more versatile and effective faculty; second, it contributes to the research programs of the College. Graduate studies in the College are intimately tied to the research activities of the Hawaii Agricultural Experiment Station. Much of the thesis research of students is supported by East-West Center, AID, foundations and private industry.

The Master of Science degree is offered in agricultural economics, agricultural engineering, agronomy, animal sciences, entomology, food science, horticulture, nutrition, plant pathology, and soil science. New master's programs may be developed in other fields including agricultural biochemistry, dietetics and human development. The Ph.D. degree is offered in agricultural economics, entomology, horticulture and soil science. Proposals to offer the Ph.D. in agronomy and in nutritional sciences have been submitted for approval.

Competence in food science and plant pathology has been attained to warrant extension of their present graduate programs to the doctoral level.

Conservatively the College estimates that its graduate enrollment will more than double by 1975-76.

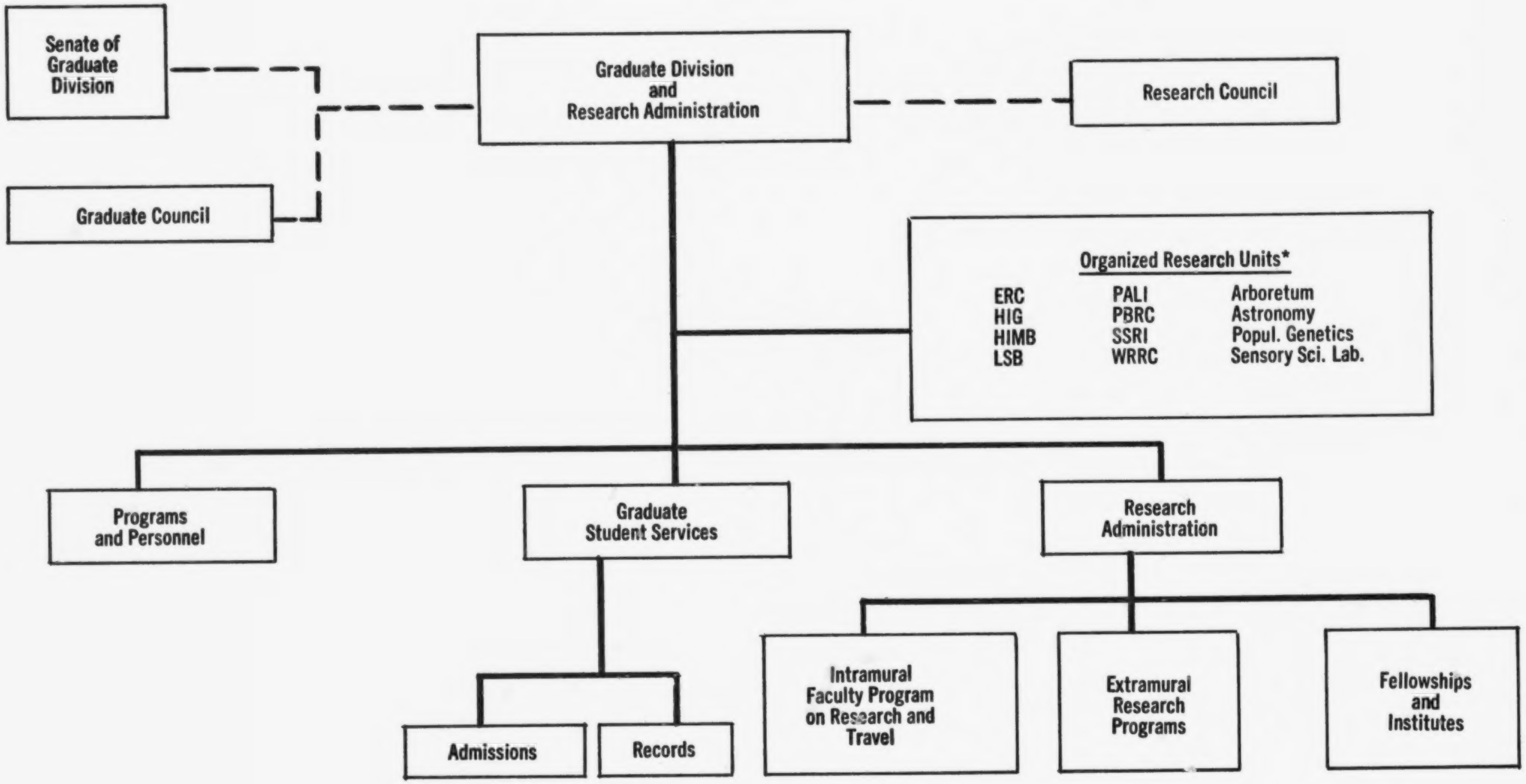
Developments Under Academic Development Plan I

1. Reorganized departments of Food and Nutritional Sciences, Human Development, Fashion Design, Textiles and Merchandising, and Home Economics under Assistant Dean to better coordinate activities in human resource development.
2. Increased enrollment in graduate programs.
3. Two-year technical programs cited in Plan I not implemented; support of such programs in community colleges confirmed.
4. Increased research in forest and pesticide work.
5. Installed multipurpose irradiation facility.

Projected Developments Under Plan II

1. Strengthen integration of instructional, research and service programs.
2. Improve quality of undergraduate instruction to fit students for professional work in agriculture, agricultural business, human resources agencies and government.
3. Expand curriculum to include two-year programs in technical agriculture and short-term courses in agricultural development in the Pacific Basin and Southeast Asia.
4. Develop courses in adult education.
5. Strengthen graduate studies, including planned development of Ph.D. programs in agronomy, nutritional science, and other fields when appropriate.
6. Initiate courses in land use, conservation, pollution control, handling of tropical products, and agricultural journalism.
7. Restructure administrative organization to achieve above objectives, including stronger links between Cooperative Extension Service and the public.

GRADUATE DIVISION AND RESEARCH ADMINISTRATION


Senate of Graduate Division
Graduate Council
Graduate Division and Research Administration
Research Council
Organized Research Units*
ERC
HIG
HIMB
LSB
PALI
PBRC
SSRI
WRRC
Arboretum
Astronomy
Popul. Genetics
Sensory Sci. Lab.
Programs and Personnel
Graduate Student Services
Research Administration
Admissions
Records
Intramural Faculty Program on Research and Travel
Extramural Research Programs
Fellowships and Institutes

* The names of the units here identified by their initials are fully stated in the text which follows.

Chapter 17: GRADUATE DIVISION

Purposes and Objectives

All graduate work at the University of Hawaii is under the general jurisdiction of the Graduate Division, which examines new graduate programs before they are approved; reviews qualifications and approves appointment of faculty members likely to be engaged in graduate instruction; admits graduate students and approves appointment of graduate assistants; administers graduate student records, fellowship and scholarship programs; and, in conjunction with the respective colleges and schools offering graduate instruction, sets and maintains standards for curricula leading to advanced degrees. The Dean of the Division, who also serves as Director of Research, is advised by a Graduate Council consisting of 16 faculty members and a representative of the Graduate Students' Association, and by a Senate with representation from each field of graduate study (now 64) plus a member of the Graduate Students' Association.

The relationship between the Graduate Division and the departments in which graduate work takes place is as follows. The undergraduate programs, the general administration and the financing of departments are conducted through the appropriate college or school, but their graduate programs are carried on through the Graduate Division. Graduate degrees are awarded upon recommendation of the department faculty to the Dean of the Graduate Division, who in turn recommends to the Board of Regents. Proposals for new or revised programs and courses are cleared first through the college and then sent to the Graduate Division for review and approval.

The Graduate Division enrolls only those students who have been accepted by the appropriate department (under standards set by the Division) as potential candidates for an advanced degree, or to participate in certain special programs. It is anticipated that by the mid-1970's there will be between six and eight thousand graduate students on the Manoa Campus—a substantial increase over the current enrollment of 2,700, but amounting to less than a third of the ultimate student population of the campus. This ratio is consistent with the judgment that a graduate program of proper size is one which helps attain the appointment of the best scholars to the faculty, provides first-rate graduate instruction and results in significant additions to knowledge, while at the same time strengthening and supporting undergraduate instructional programs rather than reducing their quality or importance.

Academic Goals: Criteria for Ph.D. Programs

The basic operating principle of the Graduate Division is unchanged from 1964—to expand into new areas only selectively, while continuing to upgrade existing graduate programs. The policy of selective excellence

GRADUATE DIVISION AND RESEARCH ADMINISTRATION

	Actual		Projected	
	1963-64	1968-69*	1972-73	1975-76
Graduate fields of study:				
Masters	49	65	68	70
Doctorate	18	28	34	40
Graduate students enrolled (Fall only):	1,067	2,508	5,550	6,200
Masters	913	1,927	3,400	4,550
Doctorate	154	502	1,150	1,650
Special	†	79	80	100
Degrees granted:	318	866	1,800	2,550
Masters	304	819	1,600	2,250
Doctorate	14	47	200	300
Extramural research grants administered:				
No. of grants	96	202	300	400
Value	$2,663,330	$10,528,231	$16,751,000	$22,296,000
Intramural research grants:				
No. of grants	96	136	240	320
Value	$ 53,000	$ 118,776	$ 207,000	$ 275,000

*Data on degrees granted and research grants is for 1967-68.
†No category for "Special Graduate Students" in 1963-64.

follows from the nature of graduate instruction and research, and the high cost of graduate studies, as well as from the prescriptions of geography. The University of Hawaii cannot excel in all fields of graduate study. It has certain advantages inherent in its mid-Pacific location and its multicultural society which provide unusual opportunities to excel in certain fields. Marine sciences, oceanography, oriental and Asiatic philosophy and history, Asian and Pacific languages and linguistics, Asian history, tropical meteorology, tropical agriculture, astronomy, Pacific islands studies are among the areas of specialization which our location favors. Continued emphasis will be given to these and other fields in which the University is naturally favored.

Strong beginnings have already been made. Most of the 28 fields in which the Ph.D. is now offered are based upon the advantages and the needs of Hawaii. Others remain to be added. Economics is an example. As indicated in the 1964 Plan, opportunities for advanced work in economic development and regional economics are excellent, in Hawaii itself as well as in other Pacific islands and in Asia. Difficulties in recruiting qualified faculty in this very competitive field have delayed implementation of the proposed doctoral program in economics but it should be ready shortly.

Progress has been made toward the development of more advanced graduate programs in Asian and Pacific languages. The instructional program has improved markedly in the past few years. The doctoral program planned for inauguration in 1967 has not yet been authorized, but, given the existing and prospective faculty, a doctoral program will soon be established.

Academic Development Plan I stated: "A few doctoral programs will be added in the next decade, but as is true for other programs of the University, the main emphasis must be placed on improved quality of present programs." Since 1964, nine new Ph.D. programs have been approved. Since, with the two exceptions just noted, the areas of special emphasis identified in Plan I have been developed, it is now pertinent to ask whether additional programs should be projected and, if so, what the criteria for selection should be.

Either of two circumstances may warrant approval of new doctoral programs. The first results from *planning* to establish a program and the second, from *evolving* one. The first condition applies when natural advantage leads the University to specialize in a field —as discussed above—or when a field of study must be developed highly because it is basic to advanced work in other fields. Mathematics is a prime example of the latter condition.

The second—evolutionary—situation is typical of a university growing in size and improving in quality. If, in its natural growth, a department or program assembles a competent faculty and builds up adequate financial support through the budgeting processes of the University and the state, doctoral programs may develop in fields neither envisioned in the first Plan nor required as basic to other disciplines. In other words, these programs will evolve without a long-range plan that they be developed.

Adopting these criteria for deciding when to add doctoral programs will encourage the scholarly development of the University within its budget limits. It will guard against a policy whereby continued emphasis upon fields with special advantages might result in the relative neglect of others, or foreclose opportunities to develop the University to the fullest extent.

A more rounded development of the University at the graduate level will bring benefits to the undergraduate programs as well. The relationship between the two is intimate. With few exceptions, the more senior members of the faculty teach at both the graduate and undergraduate levels. The opportunity to strive for establishment of a doctoral program will, given the quality of scholarship required, result in upgrading the faculty through application of more stringent standards for appointment and promotion. This, in turn, will lead to improvement of the quality of undergraduate academic programs.

Increased demand for graduate education and improved preparation of undergraduates—nationally, as well as in this state—coinciding with the betterment of graduate programs at the University, has resulted in a significantly improved quality of applicants for admission to the Graduate Division. A number of fields of study have already reached the limit of their capacity to absorb additional graduate students and have become highly selective. This condition will become widespread during the next few years. It should be regarded as a good sign since graduate education is expensive and should be limited to students who are demonstrably able.

Program Reviews: Supervision of Students

The graduate degree programs will continue to be under a constant review which seeks to rationalize curricular requirements and improve their quality, and also shorten the time required to complete the course of study. This continuing appraisal began in 1967-68, when the Graduate Council adopted a policy calling for a review of each Ph.D. program once every five years. Ad hoc committees of the Council investigate all aspects of each program, meeting with the department chairman to discuss their findings and recommendations, which they subsequently report to the Council. The Dean of the Graduate Division also meets with each department chairman and his college dean at least once in two years to review graduate affairs in the department. A third kind of review began in 1966. In cooperation with graduate students, the Graduate Council formulated and now distributes a detailed questionnaire to all candidates for advanced degrees to obtain information about their experiences in the graduate programs of the University and their suggestions for improvement. This, too, is being done every other year. Results are discussed with chairmen and deans during the biennial meetings with them.

These reviews consistently point to a problem of overriding importance: providing each student with the personal attention essential to success in graduate work. First-rate graduate programs at the doctoral level, and many masters' programs as well, require a tutorial relationship between professor and student. Experience has demonstrated that each faculty member involved in graduate work should have no more than three to five doctoral students under his immediate supervision if the students are to receive adequate professional attention. To exceed these limits is a disservice to the student, the professor and to those who provide financial support for the programs of graduate education.

Much has already been done to alert the faculty in each field of study to this problem. A general solution requires additional staff and the participation of all faculty members qualified to supervise graduate study. Success in this endeavor, combined with careful selection of students for admission to the Graduate Division, will minimize the number of students failing to reach their academic objectives and will help insure that the funds allocated to graduate education at the University of Hawaii are used to full advantage.

Chapter 18: RESEARCH ADMINISTRATION

Purposes and Objectives

Activities of educational institutions generally involve elements of teaching and public service outside the classroom. The distinctive feature of a university is that its faculty, engaging in teaching and public service, is also expected to advance knowledge through research and creative activity.

Emphasis upon research and creative work in the University is the result of centuries of experience. By assembling the best students and a faculty of scholars who have qualified for their positions by virtue of rigorous programs of study and careful review of their performance, modern societies have attempted to create conditions ideal for the continuing search for truth and the transmittal of information about the latest developments in all branches of knowledge to those best able to use it.

The research goal of the individual scholar in the University is to add as much as he can to the sum of knowledge in his field of special interest. This is a life-time commitment. Its fulfillment is of two-fold importance to the University. First, it helps to assure successive generations of students that the content of their education remains up-to-date. Second, the cumulative result of the expansion of knowledge generated by individual research efforts is to help the University achieve another of its goals—improvement of the quality of man's life.

Attainment of these unlimited goals, so essential to the survival of a dynamic society, must be financed from funds which are limited. Thus, each university must select the areas of instruction and research to which it will give special emphasis.

For the University of Hawaii the basic criterion for selecting areas of special interest, enunciated in Academic Development Plan I, was that scholarship would be fostered with special diligence in areas in which the University has some inherent advantage. In addition, and in the tradition of land-grant universities, this institution concerns itself with research which promises to contribute significantly to the development of the State of Hawaii. Emphasis upon these fields, however, does not mean neglect of others. Any field of study deemed worthy of being included in the instructional program of the University must certainly be given full support to enable its faculty to undertake research.

Choosing the fields of research to be given special attention and development is not difficult. Hawaii's mid-Pacific, geographically isolated, subtropical location, coupled with the interesting presence of a variety of racial groups and cultures, has long attracted scholars with research aims best satisfied by living in Hawaii and working at this University. Thus research in marine biology, oceanography, Pacific and Asian linguistics, tropical botany and agriculture, economic development in Asia and the Pacific Islands, Asian history, astronomy, tropical meteorology, certain aspects of sociology and anthropology— to name just a few areas—can be carried on better here than elsewhere in the United States.

Organization and Procedures

Facilitating research requires a variety of organizational arrangements. Much research can be and is accomplished within the academic teaching departments. This arrangement is efficient if the research problems to be investigated can be handled by members of the faculty in a single discipline, if the equipment needed for teaching and research is largely the same, and if necessary administrative support, such as clerical and stenographic assistance, is within the capacity of the department.

When research requires special or costly equipment and facilities which can be used in common by investigators in several related fields of study, organizations other than teaching departments may be more efficient mechanisms for facilitating research. The same is true if the research to be undertaken can be accomplished only by close, virtually continuous cooperation of scholars in different disciplines. In some instances, even when the research is confined to one discipline and the research equipment is used in the teaching program— astronomy is an example—the research facilities may be so large and sometimes so far from the campus that the establishment of a separate research organization is justified. Two significant changes in the administration of research have been made since 1964. First, the positions of Dean of the Graduate Division and Director of Research have been assigned to the same person in order to maximize coordination between graduate instruction and research. Research grants, special training and research programs, and graduate fellowships and traineeships are now administered in one office. Second, the Research Corporation of the University of Hawaii—a public corporation with a board of directors appointed by the Governor—was established to administer research grants and contracts involving unusual requirements, such as work in foreign countries, hiring of special types of personnel, and operation of facilities and equipment not readily accomplished under the rules of the State Government of Hawaii which apply to the operation of the University. The Corporation cooperates with privately-owned research firms in making available the professional talent associated with the University to undertake research of interest to both groups, thus increasing the flexibility of research operations within the University. Its initial organizational problems having been largely solved, the Corporation will become increasingly important in research activities in Hawaii. It is self-financed, using no state funds except for work it may do under contract with state agencies. Its annual volume of business, now approximately $1.5 million, will probably increase to $6-$8 million within five years.

Plan I recommended that the Hawaii Agricultural Experiment Station, the then new Engineering Experiment Station (renamed the Center for Engineering Research), and the Bureau of Educational Research (now called the Education Research and Development Center) be administered through the Office of Research Administration. Further consideration resulted in their remaining outside the direct administrative purview of the Office of Research Administration. Each of these units is operating effectively within its respective college. Since the research projects so administered involve almost exclusively intra-collegiate disciplines and staff, present administrative arrangements are satisfactory.

However, the Office of Research Administration does provide administrative and advisory services for these three units, as well as for the 12 research organizations under its direct jurisdiction and for individuals conducting research projects within academic teaching departments. Any faculty member or research unit can call on the Research Administration office for assistance in the preparation of research proposals to be extramurally financed, review of the proposals before they are sent to the granting agencies, advice on procedures and rules governing grants, along with fiscal and accounting services for the expenditure of grant funds when required. The centralization of these and related functions in one office has helped coordinate research activities, avoid unnecessary duplication of effort, and develop consistent policies of administration.

Expansion and continual improvement of the services offered by the Office of Research Administration are necessary to cope with the rising trend in research activity. In 1963-64, research grants and contracts totalled $2.7 million, a remarkable increase over the roughly $700,000 received in 1959-60. By 1967-68, the total had risen to $10.5 million. This rate of growth will not be sustained during the next two or three years, unless hostilities cease in Viet Nam. However, awards totalling between $15 and $20 million per year in the mid-1970's are not unlikely. State general fund support for research under the supervision of the Director of Research totals roughly $2.8 million in 1968-1969. By 1975, about $5.5 million will be required annually.

As was true in 1964, and consistent with the national pattern, most research funds from extramural sources continue to be awarded for the natural and physical sciences, and especially to well established investigators in these fields. To compensate for this imbalance, the Director of Research upon recommendation of the Research Council, has continued a policy of making its modest awards primarily to faculty members in the social sciences and humanities and to younger faculty in the sciences, to enable them to develop programs which can gain outside support. Competition for these intramural awards made from state-provided funds is keen and many acceptable proposals have been rejected because of limited funds. In 1967-68, for example, the Research Council received 210 proposals and was able to make only 136 awards, totalling $118,000. In 1968-69, approximately $130,000 is available for this purpose.

Plan I proposed that $200 per full-time member of the teaching faculty be allocated for intramural research support. Today, this would mean having a fund of about $160,000. Given the improving quality of our faculty and its growing commitment to research, the sum available today should be about $200,000, or $250 per faculty member. Though the average grant is small—approximately $900—the program has had the effect stated in 1964. It is "a very valuable stimulus to the progress of the University" and it contributes importantly to the growing "maturity and prestige" of the University.

The improved stature of the University is also in significant measure attributable to the presence of the 12 "organized research units" administered through the Director of Research. Some of these units were established to facilitate and encourage research activity in a number of related fields of study. The Hawaii Institute of Geophysics and the Social Science Research Institute are examples. Others were designed to handle research in areas relatively narrow but appealing to a number of specialists within those areas. Linguists, for example, find it congenial and productive to work in the Pacific and Asian Linguistics Institute.

Three of the units were created in response to external requests. They are the Land Study Bureau, the Economic Research Center and the Lyon Arboretum. The Bureau and the Center were established by the legislature to provide professional services to agencies of the state government.* The Arboretum, a gift of the Hawaiian Sugar Planters' Association, is basically a large collection of botanical materials growing in upper Manoa Valley now made available for research purposes.

The organized research units are intimately related to the instructional program of the University in two ways. First, their professional personnel, with few exceptions, hold teaching appointments in academic departments. Their qualifications for promotions and tenure are jointly judged by departmental colleagues as well as by the research organization. Second, much of the research carried on in these units employs student assistants, mostly graduates but including some undergraduates as well. Such research experience is an important part of the students' education and frequently provides entree to a professional career.

Programs, Plans and Coordination

Since most research done within the University is undertaken by members of the teaching faculty working in their fields of special interest, there is a necessarily close correlation between the development of research and teaching programs of the University. However, even though each scholar pursues his own professional interests, in the laboratory as well as in the classroom—which might seem to make the University a welter of idiosyncratic activity—his appointment to the faculty is based upon a matching of his interests with the general academic plan of the University and the more specific plans and programs of the department with which he will be affiliated.

The programs and plans of the organized research units should be based upon research interests relevant to the instructional programs of the University —except where, in the case of the Land Study Bureau, the unit was expressly established to serve a public need separate from the campus. The merging of instructional and research interests mutually strengthens both functions of the University.

Better communication and more coordination of planning between the research institutes and the academic departments are needed. Directors of organized research units should be appointed for a specific term, and subject to review of their performance, following procedures analogous to those in effect for the appointment and review of chairmen of academic teaching departments. Coordinating-advisory committees for each research unit, formed of faculty members from the relevant departments, should be appointed by the Director of Research to help achieve these ends. Departments and research organization directors are now considering how these committees can best be constituted, as well as the boundary lines between coordination and advice, on the one hand, and active direction, on the other.

Further impetus to coordinating the planning of research and teaching, as well as public service, in a broad area of special competence at the University, has been provided recently by the National Science Foundation through its Sea Grant Program. This program, an extension of the land-grant college idea, is designed to assist the University in a variety of undertakings to improve man's understanding, control and exploitation of the sea. Ten departments, ranging from agricultural economics and botany to oceanography and ocean engineering, three organized research units and approximately a hundred investigators will be involved in the Sea Grant Program, now in its first year under a $435,000 National Science Foundation grant. This program will be a continuing one with increased funding expected.

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*This is also true of the Legislative Reference Bureau, administered under the Division of Continuing Education and Community Service, discussed in Chapter 22.

RESEARCH UNITS

Social Science and Humanities Research

ECONOMIC RESEARCH CENTER

In accordance with the legislation which created it, the Economic Research Center conducts short-term research as well as long-range studies of direct pertinence to the economic welfare and development of Hawaii. These projects are undertaken by staff members who also hold appointments in various academic departments in the University, or by visiting specialists. They are assisted by a small permanent staff of junior professionals employed by the Center.

In the past, studies were usually initiated in response to requests from the legislature, its committees or other governmental agencies. These studies were directed toward solutions of narrow but, at the time, particularly pressing public policy problems that had some economic aspects.

Past experience has shown that these research requests could have been serviced more effectively if the knowledge of the Hawaiian economy had been enhanced by a broader program of long-term basic studies. The record of the ERC with respect to such long-term studies has been quite satisfactory. Although few in number, the projects have been carried out by highly competent and specialized, mostly senior, personnel. They have opened new avenues for further economic investigation and have provided the statistical data and the economic analysis necessary for informed economic policymaking. The ERC, operating within the framework of the University of Hawaii, has a comparative advantage in performing such long-term studies for at least two reasons. Given the institutional structure of basic research, such studies are the least likely to be carried out unless an academically-oriented organization performs them. Because of the specialized professional aspirations of academic personnel, it is easier to attract first-rate staff by opportunities to do in-depth studies of economic problems with broader relevance than to try to interest them in studying a narrowly defined problem that deals exclusively with a particular aspect of the Hawaiian economy. Research of wider scope and relevance has both professional publication value and transferability.

By placing more emphasis on long-term studies, the ERC will better serve both the state and the University of Hawaii. Areas and problems appropriate for long-run studies include the following:

1. Econometric studies of Hawaii's economy.
2. Studies in fiscal policies of the state.
3. Studies of Hawaiian industries.
4. Comparative studies in economic development of Hawaii.
5. Role of Hawaii in economic development of Pacific Basin and Far East.
6. Research program in economics of marine resources (joint project with Department of Oceanography and Hawaii Institute of Marine Biology).

It is the objective of ERC to fill its senior staff positions with specialists capable of handling such research areas. The responsibility of the staff member is to plan, initiate and carry out projects. Since each senior staff member holds a joint appointment with an academic department, courses in the area of his specialization can be offered.

Close contact with the resident academic departments will be pursued through the ERC sharing appointments and supporting faculty research. Equally important, the ERC can become a more fruitful adjunct to the graduate programs of these departments. It will serve as an agency providing guidance, support and facilities for Ph.D. candidates in economics and other related disciplines, so as to encourage them to undertake their dissertation research on problems of the state and the Pacific.

Since 1959 when the ERC was established, 13 graduate students have served on its staff in various research capacities. Six of these students have received their Ph.D. degrees and others have received the M.A. degrees. Currently ERC is supporting the dissertation research of one Ph.D. candidate; another one will be added in June 1969. The role of ERC in research training of graduate students is likely to expand with the development of the Ph.D. program in economics.

The ERC is currently financed from general fund revenues. In the past, special requests for research have been frequently made by various governmental agencies which provided special funds for the purpose. It is expected that when a broader research program is undertaken more extramural funds will be necessary.

Developments Under Academic Development Plan I

1. Conducted 17 studies in response to legislative requests; published results in 27 research reports.
2. Broadened "in-house" capability of Center by filling senior staff positions with specialists in several areas of economic research.
3. Attained a more balanced mix of short-term and long-term research projects.

Projected Developments Under Plan II

1. Continue research service to State legislature and government agencies.
2. Expand research program to areas of Hawaii's economy where serious problems can be anticipated.
3. Broaden research scope to include role of Hawaii in economic development of Pacific Basin countries.
4. Expand research training of graduate students.

SOCIAL SCIENCE RESEARCH INSTITUTE

The principal functions of the SSRI are to facilitate the initiation of faculty research in social sciences and to conduct programs in research, especially interdisciplinary projects. As a facilitating agency and an interdisciplinary unit, the Institute can provide more complex and specialized services and facilities than normally exist in a department. The Institute serves the University, and particularly the social sciences graduate faculty, by establishing quality research programs, as specified by Academic Development Plan I, which called for the SSRI to emphasize basic studies in the social sciences, focusing on Asian and Pacific areas. Finally, the Institute attempts to serve the needs of the state and nation by developing those services and competencies which it is uniquely equipped to provide. For the state, the program concentrates on behavioral science related to people of Hawaii; for the nation, the scope extends to the peoples of Asia and the Pacific.

During the formative years of development (1962-67), in order to stimulate research wherever there was promise, the Institute supported individual research projects. Beginning in 1967, the Institute gradually shifted toward development of broad interdisciplinary programs, while continuing to provide assistance to individual scholars in formulating proposals. It is desirable that these broad program areas be complementary to faculty research interests and graduate training programs in the departments. Ideally the Institute should play an innovating role in facilitating interdisciplinary research and training.

In the period ahead, the Institute will increasingly work to establish ties, where desirable, with departments and programs outside the social sciences. An arrangement with the Institute of Advanced Projects, East-West Center, enables six Asian scholars per year, funded by the East-West Center, to become involved in SSRI programs. It is intended that similar ties will be established within the areas of health, medicine and education, where these fields can benefit from participation of social science researchers.

The following Institute programs are now functioning or are being planned:

1. Culture and Behavior in Asia and the Pacific

It is widely recognized that through basic research the behavioral sciences can make significant contributions to the fields of mental health, social problems and medicine. To this end the SSRI has developed an interdisciplinary research program involving psychiatry, psychology, sociology and anthropology.

Initial funding has been obtained from the National Institute of Mental Health through a grant for a five-year period, 1967 to 1972, for a study of culture and mental health in Asia and the Pacific. This project will actively involve four or five members of the Institute, who each year will be joined by three specialists from the mainland U.S. and six Asians funded by the East-West Center. A proposal is being prepared for funding a comparative study of national behavior in East Asia and the Pacific, which calls for field projects carried out by previous participants in the culture and mental health program and by Hawaii graduate students. A complementary program on the social consequences of development is in a more rudimentary planning stage.

2. Korean Research Center

The increasing emphasis on Korean research in the middle 1960's at the University of Hawaii was recognized in April, 1967, when the SSRI was awarded a grant by the Ford Foundation for the development of a research program on Korea. Similar awards were made simultaneously to Harvard, Columbia, Princeton and the University of Washington. Hawaii's program is unique in that it is the only one of the five currently emphasizing social science research. During 1967-68, seven faculty members took part in the program; in 1968-69 the number of participants increased to nine faculty and three graduate student assistants. Ongoing research includes a comparative study of Korean and American social values, studies in short-term spatial movements, inflation and economic development, Korean immigrants in Hawaii, political leadership, youth adjustment problems, and labor-management relations. Success in making significant contributions to Korean research during the grant period may likely lead to additional extramural funding for the establishment of a major Korean research center at the University of Hawaii.

3. Survey Research Center

Recent years have witnessed a greatly increased demand for survey research in Hawaii, including not only public opinion studies but also the use of sample survey methods for epidemiological and demographic investigation. These demands have pointed to the need for a survey facility on this campus to serve the following functions: (1) facilitate the activities of individual campus scholars and of ongoing research programs; (2) enhance the University's attempts to obtain support for survey research; (3) provide a service to governmental agencies which require the collection of survey data; (4) create an archive of survey data for secondary analysis; and (5) provide graduate instruction in survey methods for both American and Asian-Pacific scholars. There is an evident need to develop survey research competence required to assess the impact of Peace Corps and AID projects in Asia and the Pacific.

During the 1968-69 academic year, a modest program of survey research and training has been initiated by SSRI and the Department of Sociology. A seminar in Survey Design and Analysis is being offered to graduate students. In addition, faculty members and students may obtain assistance in study design, sampling, questionnaire construction, data collection, data processing, analysis and the reporting of survey research. This first year's program is conceived as a feasibility study to determine the needs and the potential for formally establishing a survey research center on this campus. Basic groundwork is being laid for a center, with work under way to develop a continually updated sampling frame to permit the selection of probability samples in the State of Hawaii.

The long-range goals of the survey research center include the creation of continuing programs of research in such areas as mental health, higher education, epidemiology, race relations, and urban development, to be carried out in cooperation with University departments and with governmental agencies. Such programs would provide a medium for practical training in survey methods and for the pursuit of research interests by campus scholars. They would be supported by, and help to maintain, technical service facilities for data collection and data processing. Research assistantships should be made available to graduate students specializing in survey research.

4. Pacific Population Data Banks and Demographic Research

During mid-1967 the Institute carried out the tabulation and analysis of the 1966 census for the government of Western Samoa. This experience provided first-hand access to basic data which can be utilized in the study of island populations.

Behavioral scientists rarely have the opportunity to undertake the study of a total society. Here in the Pacific, this opportunity is available in a diversity of cultural settings. It has seemed desirable, therefore, given the opportunity of readily available data, to begin to collect population statistics on Pacific peoples and to provide for the establishment of data banks. In addition to its use by the social sciences, the population data bank has relevance for epidemiological research and for development planning. There are indications that national and international agencies are interested in supporting such a service center for the Pacific located in Hawaii. To date the Institute has acquired on tape or cards the latest census material on Western Samoa, Tonga, Fiji and the American Trust Territory. Similar data will be obtained from New Hebrides, Cook Islands, Gilbert Islands, New Caledonia and former Dutch New Guinea. It is intended that this program on Pacific population will be integrated with the work of the newly established population program at the East-West Center and the anticipated training program in population studies in the social and health sciences.

5. Community Research in Hawaii

A neglected opportunity for conducting basic social and behavioral research and for offering graduate training exists within the local community. Visiting researchers and foundation officials have repeatedly commented on the limited attention given the multi-ethnic community in Hawaii, since the pioneer efforts of the University's sociologists two or more decades back. Efforts to use this opportunity have already begun, with the compilation of an annotated bibliography on the Japanese in Hawaii, in conjunction with the writing of their social history. During the past four years, the Institute and a federal grant agency have supported research on the influence of peers, parents and the school on attitude formation among high school seniors in Hawaii. Currently, the Institute is providing partial support for an interdisciplinary study of a Hawaiian community in rural Oahu, a project concerned with social and political organization, family and socialization patterns, education, health, employment, economics and individual behavior patterns. Similar studies of other ethnic groups, on the other islands, are clearly desirable. The growing interest of American social and behavioral scientists in the cross-cultural applicability of their theories offers the University an opportunity to take the lead in this development, particularly in the field of psychology, where no widely recognized center of cross-cultural research activity has emerged.

6. Current Research Notes

In at least three fields of research the University has progressed to the point where Hawaii has the potential of becoming the primary academic center: mental health in the Pacific and Asian area, Pacific and Asian archeology, and Korean studies. These areas, and possibly others which may emerge in the near future, need a foundation-supported information system. The Institute proposes to develop a computer-based, fast-access information retrieval system for such research, and to publish for each strong research area Current Research Notes to fill the gap left unattended between letters and the first-draft prepublication of research results. It is believed that Hawaii's role in these national and international information networks will effectively offset its geographical isolation.

Developments Under Academic Development Plan I

1. Major funding for a six-year program, 1964-70, to underwrite faculty research in the social sciences on Asia and the Pacific.
2. Private funding for initiation of the social science research program on contemporary Korea.
3. Federal funding for establishment of a major program on culture and mental health in Asia and the Pacific.
4. Establishment of publication program: *Asian Perspectives, Asian and Pacific Archaeology Series, Hawaii Research Series,* SSRI Working Papers, SSRI Reprint Series.

Projected Developments Under Plan II

1. Expand cultural and mental health program with extramural funding to include field research in Asia and the Pacific.
2. Establish Korean research center with major private funding for faculty research and student support.
3. Establish survey research center focusing on mental health, higher education, epidemiology and urban development.
4. Increase number of University faculty members participating in social science research.
5. Establish information banks and disseminate reports pertaining to mental health in Asia and the Pacific, Pacific and Asian archeology, Korean studies, and Pacific population.
6. Intensify social science research on problems of the local community.

PACIFIC AND ASIAN LINGUISTICS INSTITUTE

In accordance with Academic Plan I, in which it was called the Pacific Lexicography Center, the Pacific and Asian Linguistics Institute was established in 1965. Its mission is to analyze, describe and classify the languages of the Pacific and Asian areas, and to use the results to improve language teaching (including English as a second language), intercultural understanding and historical knowledge. The Institute limits its interest to the description and study of key languages rather than of every language in these areas, since there are more than 1,000 in the Pacific alone. Specific areas of projected research include the South Pacific, New Guinea, Australia, Southeast Asia including Indonesia and the Philippines, and the lesser known languages and dialects of Taiwan, Japan and mainland China.

The Institute plans and conducts research in general theory and specific problems of lexicology, structural semantics, grammatical descriptions and comparative-historical analysis. It collects data on the languages of the Pacific and Asian areas, and develops and utilizes computer techniques for storage and retrieval with the intention of making readily accessible a large quantity of high-quality linguistic materials. It also undertakes research involving the application of linguistics to the practical problems of prestige dialect learning, second language learning, ethnolinguistic and psycho-linguistic relations, and the study of migrations.

Specific current or proposed research projects include: socio-linguistic studies in Hawaii; language teaching material preparation in several languages of the Trust Territory and the Philippines, especially for Peace Corps Volunteers; linguistic descriptions and dictionaries of Pacific languages as a basis for preparation of materials to teach English; descriptive, comparative and lexical materials for the Philippines, Australia, New Guinea, Micronesia, Polynesia and Southeast Asia; studies of indigenous languages of the Pacific Northwest, in order to establish possible connections between the New World and Asiatic languages; and techniques for computer-oriented lexical eliciting, grammatical and comparative analyses, and semantic codifications to handle the masses of data produced by these projects.

The beneficiaries of this linguistic research include the University teaching departments and the scientific community, educators in the concerned areas, and the indigenous peoples. The first group benefits from the theoretical insights gained. The contributions to knowledge through the investigation of languages in other areas of the world can and should be augmented by research in Asia and the Pacific. Within the University, the Institute encourages and helps initiate the types of research listed above and carried on by its own staff and through faculty members in the social sciences and the humanities participating in such programs as anthropology, Asian and Pacific languages, English, linguistics, speech and the teaching of English as a second language.

Educators in the developing Pacific areas widely lack adequate materials for classroom instruction. For example, no texts specifically prepared for teaching English to Micronesians exist. In addition, little has been prepared for using the indigenous languages in the education of these culturally diverse peoples. This condition exists largely because there has been almost no basic research on the languages involved.

The indigenous peoples also benefit, for linguistic research is one of the most immediate and meaningful ways to instill pride and self-confidence among those whose language is selected for study. The acknowledgement and overt public recognition of the value, complexity and dignity of the native languages through these means is an effectively tangible and relatively inexpensive way to help these people accommodate to the larger world in which they now live.

Developments Under Academic Development Plan I

1. Established Pacific and Asian Linguistics Institute in 1965.
2. Recruited core staff of professional linguists.
3. Completed or currently funded 15 research pro-

jects, with some 40 faculty or graduate students involved in the research.
4. Completed dictionaries, language texts and grammars for 12 languages; initiated comparative studies for another 12 languages in Pacific and about same number in Pacific Northwest.

Projected Developments Under Plan II

1. Increase core staff to support and administer additional research.
2. Increase extramural support for research on languages of such areas as the U.S. Trust Territory, the South Pacific including New Guinea and Australia, Southeast Asia, Taiwan and Japan.
3. Increase extramural support for sociolinguistics (dialects in Hawaii, languages in contact), applied linguistics (language teaching, materials development), and basic linguistic research in lexicography, language comparison and history, and language description and theory.
4. Seek support for computer-oriented research and facilities for storage and retrieval of linguistic materials for this area of the world.

Biological Science Research

HAWAII INSTITUTE OF MARINE BIOLOGY

Created in 1948, the Institute (formerly called the Hawaii Marine Laboratory) is concerned with environmental marine biology and fisheries. In addition to conducting its own research programs, facilities are provided for the grant and contract research of University faculty members and for graduate education. Staff members on request also provide advice and assistance to persons in the state and nation who are interested in special problems within the areas of the staff's competence.

The facilities of the Institute, located on Coconut Island in Kaneohe Bay, include three laboratory buildings, a shop and warehouse, numerous skiffs, three personnel boats and a 46-foot launch. A variety of equipment used in marine research is available, as well as running sea water for the tanks and ponds of the research station.

The programs of the Institute are grouped into four administrative categories: Research Facilitation; Fisheries Development; Environmental Biology and Behavior; and Cooperative Sport Fishery Unit. The latter is essentially autonomous since the unit leader and his assistant are federal employees; the Institute is the agency for carrying out University responsibilities regarding the unit. The other divisions of research in the Institute are the direct concern of its staff. Research Facilitation provides for discharging the Institute's responsibilities to principal investigators of programs funded by extramural grants and contracts, facilities needed for graduate education, a summer research institute, and arrangements for field trips of classes and other student groups. Fisheries Development includes a group of applied research programs funded by the State of Hawaii and the majority of the Sea Grant funded programs for which the Institute has responsibility. Environmental Biology and Behavior includes basic research required for fisheries work, such as investigation of fish physiology and behavior, and the study of marine ecology.

The instructional functions of the Institute include direction of thesis research and support of graduate students through assistantships. There are currently 23 research assistantships for students, with more planned. In addition, in the summer of 1967 a training program in graduate research was initiated. The subject during that summer was coelenterate ecology and physiology. In 1968 a similar program was offered for work on marine mollusks.

Several developments within and outside the Institute will lead to a rapid increase in its activities during the next few years. Its intimate linkage with programs of graduate instruction will place mounting demands upon it for the use of its facilities. Among these links are the programs of graduate education in botany, zoology, and especially oceanography. The larger number of faculty and staff grants and contracts for research, the Sea Grant program for living marine resources, the parallel state fisheries development program, and the anticipated growth in University support for environmental research will, of course, also need to be accommodated.

The new building planned to house the graduate program in oceanography at Kewalo Basin in Honolulu will take care of some of the research-based demand for the intensively used facilities of Coconut Island. Research in biological oceanography and much of the fisheries research for which the Institute is responsible could best be housed in this building. While the facilities at Coconut Island and their location are excellently suited for work relating to coral reefs and reef organisms, larval fishes, oysters, clams, and other biota of Kaneohe Bay, they provide no special advantages for other aspects of marine biology.

Space requirements for research programs are directly related to the number of persons involved and the character of their activities. For the HIMB two projections must be made: one based on the estimated number of staff at the proposed Kewalo laboratory and the other, the number at Coconut Island. Since the Kewalo site has obvious logistic advantages for activities based in part on the Manoa Campus, the demand for space, in general, may be greater at the Kewalo facility. For this reason, an arbitrary upper limit of 150 has been set as the total number of persons working at Coconut Island, and the remainder, 216, have been assigned to the Kewalo facility.

Facilities and instrumentation for marine research are evolving very rapidly. These include sophisticated analytical instruments, environmental simulators and sensors, submarine television systems, research submarines and ships. Unfortunately, the University of Hawaii is poorly equipped for environmental marine biological research. The single University research vessel is not suited for more than limited research in biological oceanography, and laboratory equipment for such research ashore is quite inadequate. Marine environmental research is very expensive because of the required facilities and equipment. In some instances, however, the lack can be remedied by sharing the facilities of other University units, such as the Hawaii Institute of Geophysics or the marine laboratory of the Pacific Biomedical Research Center.

Developments Under Academic Development Plan I

1. Established state-funded fisheries program, covering development of techniques for enhancing survival of live-bait fishes used in tuna fishing; discovery of commercial quantities of precious coral in Hawaiian waters; discovery (jointly with U.S. Bureau of Commercial Fisheries) of Hawaiian shrimp resources of commercial value; successful rearing of certain marine fishes from eggs; initiation of work on oysters, clams, crabs and some fishes of family Carangidae in regard to suitability for aquaculture.
2. Reorganized Institute into three major units: research facilitation; fisheries development; environmental marine biology (biological oceanography); plus a Cooperative Sport Fishery Unit also involving U.S. Bureau of Sport Fisheries and Wild Life, and State Department of Fish and Game.
3. Established graduate summer training program in research on coelenterates and mollusks.
4. Initiated Sea Grant Program concerned with living marine resources.
5. Constructed major laboratory building on Coconut Island and designed new high-speed research vessel for biological oceanography funded by National Science Foundation.

Projected Developments Under Plan II

1. Investigate mesopelagic animal communities of the Central Pacific.
2. Investigate benthic animal communities of the Hawaiian Archipelago.
3. Develop Hawaiian fisheries, with Sea Grant and state support, in cooperation with local fishing industry, governmental agencies and other University groups.
4. Increase support for faculty and graduate student research in marine biology and biological oceanography.
5. Develop needed facilities, including new laboratory at Kewalo Basin, new vessel for biological oceanography, new instrumentation and equipment.

PACIFIC BIOMEDICAL RESEARCH CENTER

As described in Academic Plan I, the Pacific Biomedical Research Center was established to meet the needs for interdisciplinary biomedical research in the University, the state and the entire Pacific Basin. The Center is charged with fostering research and, indirectly, graduate education in all basic fields of biomedical science. It is making a national reputation, thus becoming the primary focus and stimulus for biomedical research in Hawaii. Its influence is beginning to extend, as originally contemplated, to the Pacific Basin.

The objectives of the Center call for the development of all areas of biomedical science. At the same time, a policy of selection has been worked out based upon comparative advantage. A biomedical research center in Hawaii has several important natural advantages, among which are the availability of a rich variety of marine life and the unique ethnic and cultural patterns in Hawaii.

An example of the exploitation of one of these advantages for medically oriented research is the Center's Laboratory for Experimental Marine Biology, currently housed in the laboratory portion of the Waikiki Aquarium, pending completion of a new facility at Kewalo Basin. This laboratory is devoted to fundamental biological research on those problems for which marine organisms provide ideal experimental material and model systems, just as rats and mice have been used in other studies. Research underway and planned is centered on four programs: cell division and cell motility, development and differentiation, nerve muscle physiology, and pharmacology and toxicology of marine organisms.

At the other end of the spectrum of biological complexity, the Center will foster interdisciplinary studies of mankind in the Pacific. Much can be learned about man, medically and sociologically, by the study of primitive peoples. Some of the islands of the Pacific are the homes of certain rapidly dwindling groups of the world's folk societies. Similarly, important lessons can be learned from studies of rapidly acculturating populations, particularly with reference to the psychological and physiological stresses that accompany changing diet and life habits resulting from the shift to a cash economy.

Pacific island populations offer remarkable opportunities for detailed studies in human ecology. Studies will include complete anthropological, sociological, medical, epidemiological and psychological evaluations, along with botanical and zoological investigations of the impact of the population on the remainder of the biota, and vice versa. In order that such studies do not become simply arrogant intrusions into the lives of simple people, each study will be structured around a program of comprehensive health care for the population. The health care will be scheduled in such a way that the factors under investigation will not be affected until after all necessary observations have been recorded.

In addition to these new programs, the Center will continue its sponsorship of several current projects, including a multidiscipline study of the chemotherapeutic value of natural products of the Pacific. This work is based upon research in chemotaxonomy, pharmacology, ethnobotany and structural organic chemistry. It will also lend support to the on-going research into the very serious matter of the pollution of our environment with pesticide residues. Scientists from the School of Public Health and the Department of Medicine in the School of Medicine are combining their efforts in this program.

Further, the Center will continue to encourage interdisciplinary research by the appointment of key specialists complementary to existing strengths. It will also continue to provide a focus of research interest and collaboration for those biomedical investigators in Hawaii who are working outside the University. Finally, the Center will continue to provide specialized laboratory facilities, as exemplified by the electron microscope, and will offer central services, such as the stockroom and the animal colony. A diagnostic service also will be added.

A major growth of the PBRC facility at Kewalo is planned. There will be one rapid phase of expansion in 1970-71, when the new laboratory becomes available. Modest growth will continue during the following three or four years, an increase which will be accommodated as an overflow from the Center's facility on the Manoa Campus. Upon occupancy of the new laboratory in 1970, proposals to federal funding agencies will be drawn up for the second phase of construction, which could conceivably be occupied about 1975. Therefore, this phase of the PBRC operation can be expected to grow proportionately more between now and 1975 than the rate of increase in overall student enrollment.

In this context it may be noted that the establishment of community colleges on Oahu, together with a possible second University campus, means that there will be biomedical scientists teaching in these institutions who will lack research facilities on the scale available to their colleagues on the Manoa campus. Because of the small distances involved on Oahu, it is perfectly reasonable that the Center should provide research facilities and support to scientists who find themselves so situated and who have the energy and capacity to carry out research. They will receive the same service presently provided some members of the medical community outside the Center.

Developments Under Academic Development Plan I

1. Sponsored research program on the pharmacological value of natural products of the Pacific, in cooperation with departments of Botany, Chemistry and Pharmacology.
2. Undertook research program on the public health aspects of pesticide use, conducted jointly with the State Department of Health.
3. Established Laboratory for Experimental Marine Biology.
4. Provided electron microscope facility, animal colony and other central research facilities serving biomedical departments on the Manoa Campus and at the Medical School.

Projected Developments Under Plan II

1. Establish doctoral degree program in cell and developmental biology, based on staff and facilities of the Kewalo Laboratory for Experimental Marine Biology.
2. Develop research and training program on the physiology of marine mammals, as cooperative project between Department of Physiology and Kewalo Laboratory.
3. Evaluate marine animals of Hawaii as experimental material for basic biomedical research.
4. Promote anthropological and biomedical studies of Pacific island peoples.

LABORATORY OF SENSORY SCIENCES

Established in 1966-67, the Laboratory of Sensory Sciences is devoted to the multidisciplinary study of sensation and perception in man and other animals. The Laboratory's goals are: to develop an interdisciplinary research laboratory involving both basic and applied studies of human and animal sensation; to establish an apprenticeship undergraduate and graduate training program; to offer community services in the form of consultation, lectures and publications; to take advantage of the year-round availability of marine animals in Hawaii; and to benefit from the University's central location in the Pacific Basin by the intermingling of research workers from both Asia and America who bring with them their own techniques and special talents.

Now in its third year of operation, the Laboratory has built its physical facility and virtually completed the staffing and equipping of its shops for the construction, modification and repair of the highly specialized research equipment. The basic research facilities of the resident staff are also almost complete, though additional equipment needs to be purchased or built and installed. There is adequate, though as yet undeveloped, space available in the Laboratory building for added activities of the staff during the period 1969-75.

Research undertaken by the Laboratory has drawn on faculty and students from the departments of Zoology, Psychology, Educational Psychology, Medicine, and Biophysics, and from the East-West Center. Other projects involving the departments of Botany and Electrical Engineering are being explored. The research projects support instruction in the related disciplines through apprenticeship training of students in interdisciplinary research and problem-oriented discussion. One scientist has produced an audiometer already used in many hospitals around the world, saving and improving the hearing of thousands of patients through the diagnostic efficiency of the instrument. Another project is exploring the usefulness of a teaching device which emphasizes visual presentation in the learning of spelling and reading.

Plans call for a facility in which nine or ten scientists—members of the faculty of the University—will do their research. They will be assisted by perhaps 20 students in apprenticeship status and a technical supporting staff of 20 people. The Laboratory is already filling a role not otherwise provided by the University. To support the interdisciplinary research being conducted by the Laboratory of Sensory Sciences through the alternative of departmental organizations would result in duplication of very expensive resources—faculty, space and equipment—and perhaps less effective research.

Developments Under Academic Development Plan I

1. Laboratory established in 1966-67 to undertake multidisciplinary studies in sensation and perception in man and other animals.
2. Programs in both basic and applied research initiated; undergraduate and graduate training programs planned, supporting interdisciplinary instruction and research through apprenticeship.

Projected Developments Under Plan II

1. Encourage collaboration of research workers from both Asian and American continents.
2. Programs in both basic and applied research in education, communication and medicine.

POPULATION GENETICS LABORATORY

The Population Genetics Laboratory was established in 1968 to conduct research, especially concerning the peoples of the Pacific Basin. Supported largely by a program grant from the National Institutes of Health, the Laboratory is the only one of its kind working in population genetics. The World Health Organization has designated the Laboratory as the WHO International Reference Center for the Processing of Human Genetics Data. The role of the Laboratory therefore includes international research and postdoctoral research training.

The Center's basic program is carried out by a small staff consisting of the director, computer programmers, a systems analyst, computer operators, and the secretariat. To these are added annually ten or more visiting investigators from other institutions. The Laboratory occupies three temporary buildings, one of which houses a CDC 3100 computer which is available free on a second-priority basis to other biomedical researchers. Another building contains serological and biochemical laboratories, and the third provides office space and a data bank.

As an International Research Center, the Laboratory has many activities related to areas outside the Pacific Basin. Currently these include studies of genetic effects of isolation by distance, combined with other aspects of population structure, in Switzerland. A study of genetic factors in northeastern Brazil has recently been completed. Visiting investigators are engaged in analysis of studies conducted in Belgian, South American and other populations, with special reference to effects of local inbreeding and other problems in medical genetics. Several research projects have been concerned with the multi-racial population of Hawaii. Special attention has been directed to diseases whose incidence varies markedly among racial groups. Studies from the Laboratory have been published on pyloric stenosis and cystic fibrosis in Hawaii. A family study of hypercholesterolemia ascertained through local patients is now in progress.

Program development emphasizes expansion of work in the Pacific Basin. One investigator has been comparing the genetic structure of Japan with two European countries, using blood groups as biological markers. Parallel studies in Oceania and New Guinea are being conducted in collaboration with other workers.

Developments Under Academic Development Plan I

1. Established Population Genetics Laboratory, with development of faculty research group and corps of visiting investigators, and federal funding of research programs.
2. Published monograph on *Genetics of Interracial Crosses in Hawaii;* also numerous papers.
3. Sponsored International Conference on Computer Applications in Genetics.

4. Laboratory officially designated as the World Health Organization (WHO) Reference Center for Processing of Human Genetics Data.

Projected Developments Under Plan II

1. Complete studies outside the Pacific Basin; expand research within the Pacific Basin.
2. Increase participation of University faculty in research programs.
3. Continue implementation of WHO International Reference Center and visiting investigator program.

LYON ARBORETUM

The Arboretum, a 124-acre facility at the head of Manoa Valley, is unique, for it is the only tropical arboretum in the United States devoted to research and instruction. Originally established by the Hawaiian Sugar Planters' Association to demonstrate the restoration of rain forest vegetation and to collect plants of potential economic value, since its presentation to the University in 1953 the Arboretum has become an important facility for research and instruction in botany, zoology, agriculture, phytochemistry, pharmacology and medicine.

In consequence, the development of the Arboretum is oriented to the needs of researchers over a broad spectrum of scientific activities. An example is the research on natural products of plants through the cooperative efforts of scientists in the Lyon Arboretum, the departments of Chemistry and Pharmacology, and other workers in the School of Medicine and the U.S. National Cancer Institute. In this cooperative study, natural products are isolated from plants in the Arboretum collections and processed through successive chemical and pharmacological lines of inquiry, the ultimate goal being the development of new drugs or the isolation of biologically active or otherwise interesting compounds. The Arboretum supplies raw materials from its growing collections and from the extensive field collections of scientific personnel on the staff.

The Arboretum also serves the research work of scientists in various branches of agriculture, with current emphasis on the comparative study of proteins from the Arboretum taro collections of over 50 varieties. This research is related to interest in taro as an allergy-free food. Other researchers studying fruits and flowers of economic value use the economic plant collection. This attention reflects interest in tropical products resulting from the accelerating tourist industry. However, the major beneficiaries of the Arboretum's resources are scientists pursuing basic research in the plant sciences.

Investigations are being encouraged in the areas of chemotaxonomy, phytochemistry, cytotaxonomy, cytogenetics, systematics, taxonomy, ethnobotany, tropical forestry and plant anatomy utilizing the resources of the Arboretum. Systematic and intensive study of the vanishing species in Hawaii and the montane tropics will be supported. Efforts are already in progress to establish in cultivation certain rapidly disappearing plant species.

In addition to supporting research, the Arboretum contributes wide-ranging instructional aid to the teaching programs in the plant sciences. Especially valuable are the demonstration materials combined with an experimental field laboratory, a working relationship between the teaching and research arms seldom matched in other universities.

Goals of the Lyon Arboretum include: further development and maintenance of the research collections for their service to the research and instructional programs of the University; the development of a first-rate accession and propagation activity to provide exemplary support for the foregoing; and encouragement, facilitation and execution of research centered on its resources.

Developments Under Academic Development Plan I

1. Established as organized research unit on July 1, 1964.
2. Encouraged use of facility by research and instructional groups working in botany, agriculture, medicine, and art.
3. Initiated contract research with U.S. National Cancer Institute, Department of Chemistry and Department of Pharmacology, for provision of plant materials for study of natural plant products.
4. Established a propagation facility through support of National Science Foundation.
5. Sponsored a plant collection expedition to Southeast Asia in 1964.
6. Established a research and administration cottage on Arboretum grounds.
7. Re-established and expanded Taro Clone Collection.

Projected Developments Under Plan II

1. Continue to develop research collections through additions via exchange and sponsored expeditions.
2. Develop an accession and propagation activity.
3. Encourage and facilitate research centered on resources of the Arboretum, as well as its use in instruction by University faculty.
4. Inaugurate a systematic and intensive study of the vanishing plant species of Hawaii and the montane tropics.
5. Continue to expand contract research with U.S. National Cancer Institute, departments of Chemistry, Pharmacology, Botany, Horticulture, and Entomology, etc.

Physical Science Research

HAWAII INSTITUTE OF GEOPHYSICS

The Hawaii Institute of Geophysics was organized in 1956 and funded in 1961 by the National Science Foundation as a laboratory for multi-disciplinary research and graduate training in the earth sciences. The laboratory building on the Manoa Campus was completed in 1963; the seismological vault in upper Manoa Valley and the astrophysical observatory on Haleakala on the island of Maui began operations in 1964. As the first director was also appointed in 1963, the effective start of the Institute coincided with the drafting of Academic Development Plan I.

The objectives of the Institute as stated in Plan I were: "to take advantage of the unique position of Hawaii as a national laboratory for geophysical research covering the broad field of the earth sciences." Some of these natural advantages are: high mountains; clear air; the prevailing trade winds; a changing pattern of cloud and rain; coral reefs; tsunami waves; active volcanism; the rapid development of soils; Hawaii's mid-ocean location with immediate access to all depths of the ocean; and year-round favorable operating conditions for research.

These factors combine to make Hawaii an ideal base for studying the sun and planets and a broad range of geophysical phenomena. The mountainous sites and clear air favor investigation of the upper atmosphere and ionosphere, including the jet stream in the upper atmosphere and meteorological *conditions. The prevailing winds and varied weather patterns* provide exceptional opportunity to study interaction between atmosphere and ocean, cloud physics, ocean currents and water mass structure, as in waves and tsunami activities. Continuous volcanic processes make it possible to investigate geological phenomena generated by the upper mantle, including the workings and products of volcanoes, as in crustal structure and tectonics found both in the open ocean and in association with volcanic islands. Hawaii's mid-ocean setting invites study of underwater sound transmission, involving seismic activities in the Pacific Basin radiating along all oceanic paths through the underlying crustal mantle. Finally, the presence of coral reefs adjacent to rapidly developing soils multiplies opportunities for studying microseism generation, especially the inter-relations of gravity, magnetism, heat flow and seismic parameters of the crust and upper mantle to the geology of the ocean floor and to oceanic islands.

With such an extensive list of possible lines of study to choose from, it became obvious that the research program for the Institute would have to be developed in accord with inherent strengths. Programs would need to be mutually supporting, drawing upon the multi-disciplinary interests of the staff and upon facilities promising a high potential for significant scientific discovery. Faculty interest and availability for research is a key factor in the overall program of the Institute, since with few exceptions the scientific staff are on split appointments with academic departments and have continuing teaching commitments.

In 1963 the research areas selected for special attention included astrophysics, geology, sub-surface hydrology, geochemistry, meteorology and tsunami research, the last a multi-disciplinary program involving aspects of seismology, oceanography, geology, engineering and underwater sound-propagation. Although the research program achieved considerable breadth, only the programs for meteorology and the study of tsunamis were developed in depth, since state support was limited and federal funding for research in the earth sciences leveled off in 1963. A pragmatic approach therefore had to be taken in developing the Institute under austerity conditions. The single international program that received significant support as a University project was the International Program for the Study of the Upper Mantle. The two national programs that either had support or the potential for support were the exploration of space and oceanography. Taking these factors into account, the objectives of the Institute as outlined in Plan I for the following decade were to:

1. Develop research programs in solid earth geophysics, oceanography and astrophysics and *strengthen existing programs.*
2. Seek support for an adequate research vessel, vessel-servicing facilities and an oceanographic-marine geophysical facility.
3. Work with the U.S. Corps of Engineers to obtain use of the hydrodynamic model facility at Kewalo Basin, eventually to be turned over to the Institute for oceanographic and coastal engineering research.
4. Endeavor to keep down demands on the state budget to the amount required for a hard core of personnel, essential operating costs and a minimum of equipment.
5. Work by split appointments and other means to strengthen the inter-relationships of research with graduate instruction and the Institute with the associated departments of instruction, since the strength of the Institute depends on the strength of these departments.

The above were not research objectives so much as statements of policy. In broad outline they still hold today.

Developments Under Academic Development Plan I

1. Developed the program and staff in solid earth geophysics for both research and teaching almost

entirely through grants and contracts, thereby concentrating state support on other areas, particularly oceanography and astrophysics.

2. Made a case to the National Science Foundation for the deep boring through the earth's crust to the mantle (Project Mohole) at a location north of Maui.
3. Obtained the 98-foot vessel *Teritu* under an N.S.F. grant and converted it to a research vessel; obtained support for leasing a deep sea research vessel, the 165 feet *Mahi.*
4. Obtained marine facilities at Keehi Lagoon and Kewalo Basin; conditioned Pier 18 in Honolulu Harbor, assigned to the Institute by the state, as a marine facility complete with shop and warehouse space.
5. Obtained commitment from the state for development of Mauna Kea for an astronomical observatory; organized staff to promote the development of astronomy.
6. Maintained a research program for which extramural support increased from $450,000 in 1963 to $2,300,000 in 1968. Increase was accomplished despite the reorganization of astrophysics in 1967 into an Institute for Astronomy; separation of subsurface hydrology in 1964 to form the Water Resources Research Institute; and transfer of the Look Hydrologic Laboratory to the College of Engineering in 1967.
7. Research programs in the Institute led to the establishment of graduate programs in solid earth geophysics and geodesy, oceanography, and *astronomy.*
8. Increased number of graduate students working in the Institute from 37 to 202 and the overall staff (including graduate students working under grants and contracts) from 67 to 330.
9. Established new programs, including gravity, magnetism, explosion studies of the crust and upper mantle, cloud physics, atmospheric chemistry, chemistry of sea water, soils, geodesy and underwater acoustics.
10. Increased productivity, as measured by publications and disseminated reports, from 36 publications and 19 reports in 1963 to 59 publications and 27 reports in 1968.

Projected Developments Under Plan II

1. Emphasize program in tropical meteorology; analysis of satellite meteorological data; study of cloud particles and factors controlling precipitation; and energy flux between the ocean and atmosphere.
2. Study shallow and deep currents around Hawaiian Islands, the eddy system related to the North Equatorial Current, internal waves, and the Equatorial Current System.
3. Research geology of oceanic islands, particularly the petrology of lavas, their age relationships and areal distribution, geologic structure of the sea floor.
4. Study development of soils and their changes in composition and characteristics on being introduced into a marine environment.
5. Examine chemical composition of the atmosphere and its influence on cloud nuclei; composition of volcanic gases and their relation to volcanic magma and the rock products of volcanism; composition of sea water and its relation to the thermal structure of the ocean, temporal changes in climatic conditions and biological productivity.
6. Standardize surface gravity data on a global basis; relate these data to earth's external gravity field, as defined by satellite orbital perturbations.
7. Study tsunami wave generation, source areas and propagation, and run-up.
8. Study underwater sound propagation as a function of normal mode and wave theory propagation over long paths in the ocean environment.
9. Emphasize programs having distinct interrelationships; for example, underwater sound transmission as related to physical oceanography, the energy flux between the atmosphere and sea surface, sea floor bathymetry and sediment type.

INSTITUTE FOR ASTRONOMY

The Institute for Astronomy was created in 1967 around a pre-existing group within the Hawaii Institute of Geophysics. The staff of the Institute is responsible for the initiation and execution of research programs in astronomy. Facilities are located on the islands of Maui, Hawaii and Oahu.

On Haleakala (10,000 feet) the Institute maintains three observatories: one devoted to observations of the sun, one to studies of the faint emissions of the atmosphere (the airglow) and a third which observes the faint radiation (zodiacal light) produced by the scattering of sunlight by interplanetary particles. In the Waiakoa district of Maui, the Institute operates a laboratory and office building for support of these observational programs at Haleakala.

On Hawaii, the Institute is completing an 88-inch telescope and two 24-inch telescopes. These installations, expected to be in full operation by mid-1969, will be supported by a complex of buildings at 9,000 feet on the slopes of Mauna Kea.

On Oahu, the Institute occupies space in four separate locations—one on campus and three off. This division of the staff is unfortunate, but has been forced by the Institute's rapid growth. Plans are being advanced to construct a building on the upper Manoa Campus to house the Institute's Oahu staff.

Research programs of the Institute are largely conditioned by the excellent properties of its sites on high mountain peaks, notably the extremely pure air and very low water-vapor content of the overlying atmosphere. Purity of the air makes it possible to study in detail the faint emissions of the night sky, zodiacal light, interstellar radiation and the solar corona. The extreme dryness of the overlying air yields a high transmission in the infrared region of the spectrum. The new and highly promising field of infrared astronomy, therefore, is a significant component in the Institute's research programs, one that will receive added emphasis.

Support for the Institute's programs is provided partly by the state and partly by federal agencies, chiefly NASA, the Office of Naval Research, the U. S. Air Force, and the National Science Foundation. Federal support will continue to be a controlling factor in the Institute's development. The staff of the Institute presently numbers about 100. Of these, 23 are professional research scientists and eight share appointments between the Institute and the Department of Physics and Astronomy. Through this association the Institute's staff plays an important part in graduate student training, providing space, facilities and research assistantships to graduate students in astronomy. Plans for the Institute envisage a scientific staff of approximately 30 by 1972, of whom about five will be visitors from other institutions on appointments of at least one semester, and a total support staff, spread among the three islands, approximating 120.

Facilities for research in astronomy within the Institute are growing rapidly. Apart from the telescopes on Haleakala and Mauna Kea, the Institute maintains a range of sophisticated equipment for the analysis and interpretation of observational data. In its laboratory space the Institute has developed a broad range of competence in infrared physics, which will increase in scope as time goes on. The ability of its mechanical and electronics workships to fabricate precise instrumentation makes the Institute largely self-sufficient in the maintenance and development of observing equipment.

Future plans emphasize those aspects of astronomy which can be best—perhaps uniquely well—carried out in the Islands. However, since such studies inevitably generate the need to obtain data from space vehicles, it is planned to initiate a program in satellite astronomy. Some first steps have already been taken towards this end through a rocket astronomy program. Much valuable work is to be done in space research. The creation of a strong complementary program in both space and ground-based astronomy is therefore a sound direction for the future.

Developments Under Academic Development Plan I

1. Established the Institute for Astronomy.
2. Developed a broad research program in astronomy, largely financed by extra-mural support funds for programs and facilities.
3. Developed observing facilities and equipment for Mauna Kea and Haleakala Observatories; acquired equipment for facilitating the interpretation of observational data.
4. Attracted national and international interest in the excellent qualities of the Hawaiian mountain sites for astronomical observations.
5. In association with Department of Physics and Astronomy, implemented graduate program leading to M.S. and Ph.D. in astronomy.

Projected Developments Under Plan II

1. Complete observational and support facilities on Mauna Kea and Haleakala; continue efforts to preserve, document and develop their potential as major national centers for astronomical observations.
2. Develop program in space astronomy, complementary to the ground-based effort.
3. Increase collaboration with Department of Physics and Astronomy in development of laboratory research programs of mutual interest—particularly in solid state physics and spectroscopy.

LAND STUDY BUREAU

As the land research unit of the University and the state, the Bureau compiles and coordinates data on land characteristics and utilization and develops additional information to integrate economic and physical data to achieve the maximum and best use of the lands of Hawaii. Specific projects and functions include: making a basic land classification of the entire state; recommending alternatives in land-use problem areas; developing special-purpose detailed land classifications as need arises; and providing information essential to program and policy decisions involving land-use, economic development and property taxation in Hawaii.

Utilizing soil survey data, supplemented by additional information on crop suitability, agricultural technology and other salient facts, the Bureau has developed a detailed classification system for all the lands of the state. The results have been published for the six major islands—Kauai, Oahu, Molokai, Lanai, Maui and Hawaii. In these bulletins, the Bureau inaugurated printing land classification data on aerial photographs and then cross-indexing land classification sheets with property tax-key maps.

The Bureau has completed other research reports covering: post-war urban development of the islands of Oahu and Hawaii; economics of leasehold and fee simple tenure of residential land in Hawaii; classification of Oahu lands by physical qualities of urban usage; economics of ranching on each major island; plus numerous special study reports. Bureau staff members have also lectured and served as graduate-student program advisors in areas of their professional expertness.

Now that the initial detailed land classification has been completed, current and future projects include: integration and computerization of classification and other land fact data; continual updating of information as economic and technological changes occur; study of land-use problems throughout the state; development of special purpose classifications; continuing research in land economics; and providing technical and advisory assistance to other segments of the University, the legislature, agencies of the state, federal and local governments, and private organizations and individuals.

Projections of population and other economic indicators point to increasing pressures on Hawaii's limited land resource and an increasing need for land research to attain maximum and best use. Also, as a result of the expanding role of the State of Hawaii and the University in the economic development of the Pacific and Asia, the Bureau can be expected to provide technical guidance in the solution of land problems in these areas. It has already participated in the development of a land classification program for the Trust Territory and in land-use programs in other Pacific and Asian countries.

Developments Under Academic Development Plan I

1. Completed a detailed land classification of all the lands of Hawaii; reports published for Hawaii, Maui, Lanai and Kauai.
2. Completed classification of Oahu lands by physical qualities for urban usage.
3. Commenced updating of detailed land classification program with revision of study for island of Molokai.
4. Published study of post-war urban development on island of Hawaii and study of economics of leasehold versus fee simple tenure of residential land in this state.
5. Completed numerous special reports on land use for legislature, state departments and others.
6. Participated in developing a land classification program for the Trust Territory and in land-use programs in other Pacific and Asian countries.

Projected Developments Under Plan II

1. Strengthen capability for making economic analysis.
2. Expand Bureau's participation in land classification and land-use programs of Pacific Basin countries; conduct Asian-Pacific conference on land classification.
3. Seek extramural support for Bureau program and expand cooperative investigations with other units of the University.
4. Integrate and computerize land classification and other land fact data to facilitate application and research in the solution of Hawaii's land-use problems; develop special purpose land classification studies as required.
5. Provide technical and advisory assistance to other segments of University, legislature, agencies of state, local and federal governments, and private organizations and individuals.

WATER RESOURCES RESEARCH CENTER

As originally conceived and described in Plan I, the functions of the Center were to: plan and initiate water resources research projects; coordinate water resources research among various units of the University; represent the University on water resources research matters at all levels; promote and arrange interdisciplinary instructional programs and research opportunities for hydro-scientists affiliated with various instructional departments of the University; and administer grants and contracts arranged by or assigned to the Center. As the program expanded, it became evident that the Center was expected to assume the major responsibility for basic research on water resources on behalf of the state as well.

As originally planned, the Water Resources Research Center was to have minimum administrative and clerical staff, and to draw its research staff from the Hawaii Institute of Geophysics, the Center for Engineering Research and related instructional departments. However, the terms of its original federal funding led to the establishment of several research positions directly administered by the Center itself. In addition, the Center was given responsibility for all University research in hydrology. In fields other than hydrology, the Center continues to rely, partly or wholly, on the services of personnel of other research institutes and teaching departments with overlapping interests. It has been the policy of the Center to strengthen the instructional programs in the various fields involved in water resources research by making all of its permanent professional appointments jointly with teaching departments.

Research in the Center is organized informally in six programs:

1. Engineering hydrology: studies of confined Herzberg-lens hydrodynamics and ground-water tracing and of the hydrology of small watersheds.

2. Hydrogeology: studies of geologic controls on the bottom response of a confined Herzberg lens, regional hydrology, applications of geophysics to exploration for ground water, and applications of electric well-logging.

3. Hydrometeorology and agrohydrology: studies of crop evapotranspiration, meteorological controls and effects of mulching.

4. Water quality and pollution: studies of transmission of pollutants in ground-water recharge, movement of excess irrigation water in recharge, estuarine bacteriology, and color in water supplies and its removal.

5. Water ecology: a study of effects of pollution in estuaries.

6. Water socio-economics: an initial study of methodology for determining the productivity of water for sugar cane irrigation.

Some projects underway or now being planned span several programs. These are a study of requirements for data network design for water resource monitoring, a study of physical, biological and economic aspects of estuarine pollution, and compilation of a Hawaiian water resource bibliography.

Coordination of the overall research program of the Center with the related programs of federal, state, county and private organizations, and with the needs of the state as a whole, is achieved through an advisory committee on water resources, whose members, representative of the several water-related organizations, are appointed by the president of the University.

Three areas of research need strengthening. First, all alternatives for water resources development and water-borne waste disposal must be considered ultimately in social and economic terms. The need for socio-economic water resources research is quite as great as the need for research utilizing physical sciences and engineering. A thoroughly competent resource economist must be provided part-time on the staff of the WRRC and part-time in the Department of Economics or the Department of Geography, to undertake work in this field.

Research in surface-water hydrology is also urgently needed, for example, to aid in flood abatement. A competent specialist must be found to undertake and guide work on flood problems and other aspects of surface water hydrology.

The greatest failures to meet the requirements defined by the Division of Land and Water Development have occurred in the field of ground water geology and hydrology. This lack has occurred despite the area competence of the director and associate director, because of their unfortunate but necessary preoccupation with routine administrative matters, which should be largely conducted by an augmented administrative staff.

Coordination of the program of the Center with the programs of other units of the University has been accomplished through the staff members holding joint appointments in the other units plus occasional ad hoc conferences. The increasing complexity of the Center's program has shown the need for better coordination in use of equipment, in allocation and planning of space, and most importantly in assignment of responsibilities to those holding joint appointments. It would seem appropriate to establish a University coordinating committee on water resources, to include the director of the Center and the directors of other institutes and the chairmen of the departments or deans of the several colleges most directly concerned with water resources.

Until now, the attention of the Center has been directed almost entirely to phenomena and problems in Hawaii, as its current funding dictates. However, the mid-Pacific location of the islands and the trans-Pacific interests of its citizens justify a broader policy for the future. The concerns of the University in Pacific and Asian development, the support provided by the East-West Center, and certain similarities of hydrology shared by the Hawaiian Islands with other Pacific islands, all encourage the extension of the programs of the Water Resources Research Center to Pacific islands and parts of Asia. Some international links have been made with water resource problems in Southeast Asia, Japan, Okinawa, and especially Taiwan, and an initial hydrogeology program in Taiwan is now being planned. Ultimately some of the most important water resources research that can be done in Asia and the Pacific may well lie in the socio-economic field. The support for work overseas will, of course, be drawn from sources other than state appropriation and federal allotment.

It is assumed that the Center program will be expanded within a few years to meet the basic water research needs in the state. However, it seems probable that before 1976 the increase in its state support will level off. Any substantial growth after that will depend on the magnitude of research undertaken on behalf of the rest of the Pacific and of Asia. All things considered, it seems probable that the eight state-supported positions in the Center will approximately double by 1975.

Developments Under Academic Development Plan I

1. Established Water Resources Research Center in 1964; initiated research program in 1965.
2. Inaugurated state-wide advisory committee on water resources.
3. Expanded program utilizing full federal funding available under allotment and matching-grant provisions of Water Resources Research Act of 1964, as well as other available federal, state, county and private funding.
4. Center assigned primary responsibility for water resources research for State of Hawaii.

Projected Developments Under Plan II

1. Establish University coordinating committee on water resources.
2. Expand program to meet more adequately the state's needs for water resources research.
3. Expand programs in ground water, hydrology and economics.
4. Initiate programs in the Pacific and Asia.

PACIFIC ISLANDS STUDIES

The University of Hawaii has long been known for the breadth and depth of its interest in Pacific Islands teaching and research. More recently, various units and individual faculty members have begun undertaking service contracts in the Pacific, and the University itself has entered into a number of institutional relationships with academic and governmental agencies in the Pacific Basin. It is now apparent that some coordination is necessary to encourage the most efficient application of the University's human and physical resources. What is planned is a more formal organization for facilitating communication and systematizing interaction among faculty from all disciplines engaged in teaching, research and service related to the Pacific Islands area.

Already underway is a census of all University faculty with Pacific Islands interests—including field experience, language skills, expressed willingness to participate in interdisciplinary seminars, etc. After this information is coded the University will have an inventory of its Pacific-oriented faculty. Later, using these data, a brochure will be printed for distribution in Hawaii and on the mainland to aid in enlisting assistance for the University's Pacific Basin activities. A brief list of the University's faculty with Pacific area competence will be included in the brochure.

Planned for initiation in 1969 is the publication of a University newsletter for distribution to faculty identifying themselves as interested in Pacific Islands area. It will be designed to acquaint them with on-going campus activities and pertinent developments in the Pacific. Notice of faculty travel into the field and visits of Pacific personages to Honolulu will be published to enable concerned faculty members to benefit from these opportunities for making contacts.

The University has had a master's degree program in Pacific Islands Studies for 18 years, primarily based on the humanities and the social sciences, and designed to furnish a unique opportunity for students interested in the Pacific Ocean Basin to have access to an integrated, multidisciplinary education. As each student's course of study has been arranged to help achieve his specific goal, there has been no attempt to expand this program into a standardized curriculum, and there are no plans to do so now. However, more publicity will be given to this program as a by-product of distributing information on the University's Pacific Islands resources; also the courses available to the students enrolled in the master's program will be expanded through encouraging cross-disciplinary seminars focused on the Pacific Basin.

As one of the ways to encourage sound scholarship in new seminars, and also to assist the scholarship of other faculty members, a miscellaneous publication series on Pacific Islands subjects will be launched. Efforts will be made to solicit outside funding for furtherance of the program, and if successful, conferences on Pacific Islands problems will be organized and faculty research financed.

Central to the development of the University's Pacific Islands resources is the strengthening of the library collection. A priority in the initial phase of the program will be the expansion of the Pacific Collection in Sinclair Library, and aiding in the recruitment of a Pacific curator, as discussed in the next chapter.

Chapter 19: LIBRARIES OF THE MANOA CAMPUS

Purposes and Objectives

The primary purpose of a university library is to support the instruction and research carried on within the institution of which it is a part. In pursuing this role, the Library staff has three general areas of responsibility.

The first area involves selecting, acquiring and organizing for use the books, journals, documents, maps, microtext and other library materials needed by the faculty and students of the University. Working with faculty members, the Library staff selects from the millions of volumes in print those which are thought to be useful today and in the future.

The second general responsibility of the Library is making its materials available to members of the academic community as conveniently as possible. This includes providing assistance to locate the specific information needed by users of the Library. Given the fantastic rate of increase in the volume of published research now taking place, this function requires not only traditional methods of information retrieval, such as the preparation of indexes and bibliographies, but also a constant search for better methods of retrieval.

A third aspect of the Library's primary function is to keep abreast of developments in librarianship—including information storage and retrieval, improved methods of copying and of producing microtext, in library management, architecture and equipment—and to strive to see that the University benefits from these new developments. The increasing use of chemo-photographic methods to reproduce printed matter has altered the role of the Library with respect to faculty research, especially in journal articles. The Library must now give more emphasis to methods of providing copies of articles upon request, quickly and inexpensively.

When a publicly supported library such as that of the University of Hawaii reaches a large size, it begins to have a secondary role of service to the people of the state. A corollary to the fact that Hawaii's major centers for teaching and research in areas of vital public interest, such as architecture, agriculture, business, engineering, government and the health sciences, are located on the Manoa Campus, is that the state's largest collections of books and journals in these fields are also centered in Manoa. The library thus appropriately serves professional people throughout the state, either as they individually come to the campus, or through interlibrary loans.

The Library's Hawaiian and Pacific Collections constitute the state's greatest single collection of books, journals, manuscripts and documents relating to Hawaii and the Pacific. Its collection of current newspapers from the various islands of the Pacific is the most complete in the nation; thus the collection has not only a local but also a national and international role.

Program and Services Development

The first Academic Development Plan made six recommendations concerning the Library program. Considerable progress has been made on all of these.

The first called for an accelerated acquisition program to approach the national median holdings for universities of this size. The average number of volumes added annually for the five years up to the fiscal year 1965 was about 20,000. The average number of volumes added per year during 1966-67 and 1967-68 was 82,000. The number of periodicals received in 1965 was less than 3,000; in 1968 it was 11,000. Despite these advances, as indicated below, the present rate of acquisition will not achieve parity with the median of comparable universities. (Appendix Table VII compares Hawaii with other state universities, the same ones listed in Plan I.)

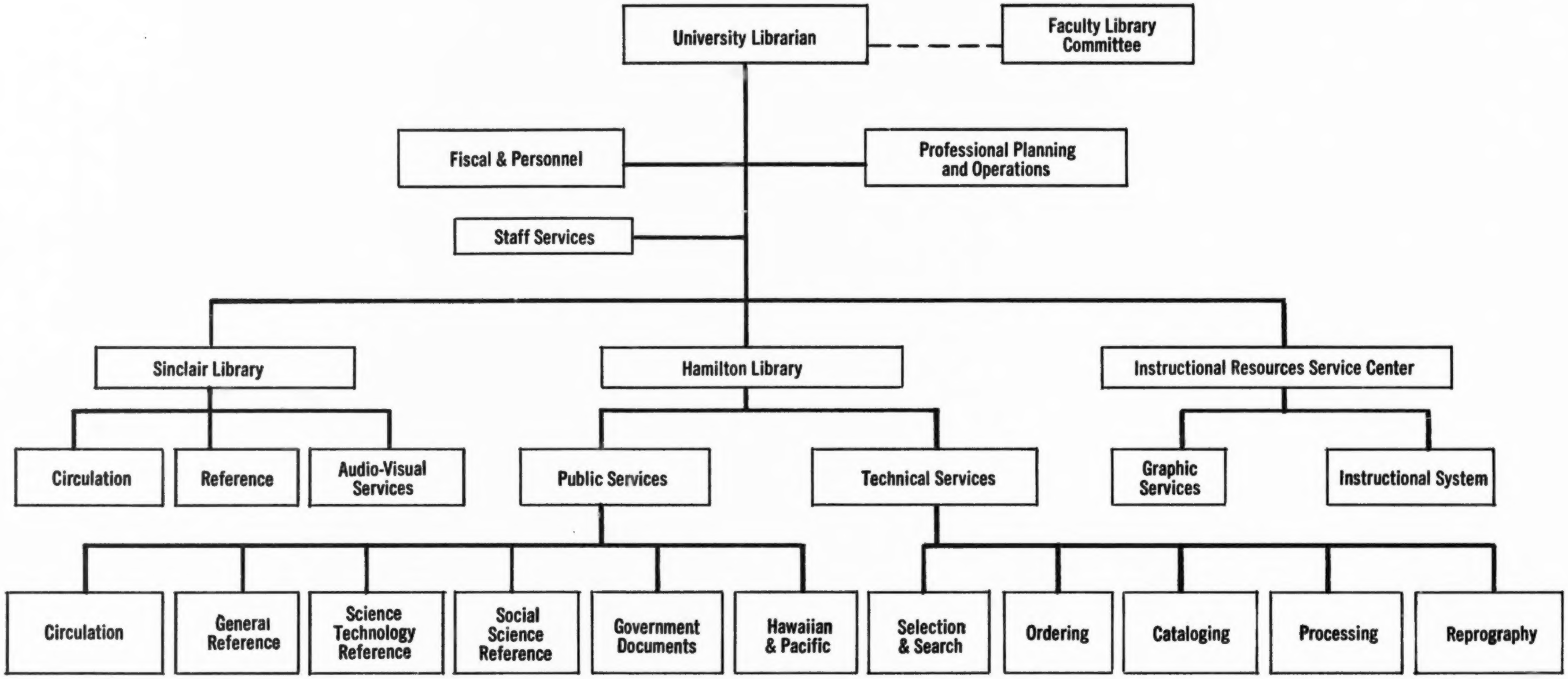
The second recommendation of Plan I was to increase operational efficiency; the third was that the Library of Congress classification system be adopted; the fourth was to establish a binding program for unbound serial parts and pamphlets; and the fifth was for improved professional status for all professional librarians. Each of these recommendations has been largely achieved. Costs of processing new books has been reduced markedly; service to library users has increased markedly.

The sixth recommendation was that a graduate research library be constructed in two phases. Phase I has been completed. The building, named the Thomas H. Hamilton Library, was occupied in mid-1968, and now houses the bulk of the collection. The great urgency of proceeding with Phase II will be presented below.

Goals For The Next Eight Years

While there is cause for satisfaction in the progress since 1964, it remains true that in terms of its collection of bound volumes, the University of Hawaii still ranks well below the median for state universities. Further, while conservative standards recommend seating for approximately one-third of the student body in the libraries on a campus, the new Hamilton Library and the Sinclair Undergraduate Library jointly provide space for only one-sixth of the student body.

LIBRARY ACTIVITIES (MANOA)


University Librarian
Faculty Library Committee
Fiscal & Personnel
Professional Planning and Operations
Staff Services
Sinclair Library
Hamilton Library
Instructional Resources Service Center
Circulation
Reference
Audio-Visual Services
Public Services
Technical Services
Graphic Services
Instructional System
Circulation
General Reference
Science Technology Reference
Social Science Reference
Government Documents
Hawaiian & Pacific
Selection & Search
Ordering
Cataloging
Processing
Reprography

MANOA CAMPUS LIBRARIES

	Actual		Projected	
	1963-64	1967-68[‡]	1972-73	1975-76
Number of Bound Volumes				
University of Hawaii	403,130	647,724	1,055,224	1,291,000
(East-West Center)	(150,128)	(268,727)	(443,727)	(548,727)
Bound Volumes Added				
University of Hawaii	18,699	94,790[*]	102,000	112,000
(East-West Center)	(17,424)	(34,947)	(35,000)	(35,000)
Amount Spent—				
Books & Related Materials	$234,212	$639,172	$1,078,000	$1,288,000
Staff:				
Professional	34[†]	60	68	70
Civil Service	36[†]	90	112	120

[*] Including some 24,000 volumes cataloged and added to the collection this year but purchased in previous years.
[†] Excludes Communications Service Center.
[‡] Data on staff is for 1968-69.

The Book Collections

How adequate is the library collection of this University? It was reported above (and in Appendix Table VII) that the number of volumes held by the University of Hawaii— 553,000 in June 1967, approximately 650,000 now—is smaller than the collections of any of the 11 state universities to which it was compared, having in fact little more than half of the median figure.

Perhaps a truer guide to this University's book needs is the existing and proposed programs of this institution. During 1967-68 the Library spent approximately $640,000 for books and journals, and had a backlog of about $300,000 requested by departments but unpurchased because of lack of funds. This is strong evidence that even present needs are not being met; inevitably, as programs are enlarged and new ones undertaken, even more funds will be required.

For example, central to the development of the University's program of scholarship concentrating on the Pacific Islands is the strengthening of the library collection for this area, which should be an outstanding one. Expansion of the Pacific Collection in Sinclair Library is planned, as is the appointment of a Pacific curator. Liaison arranged with Pacific Islands research programs in Australia, New Guinea, Guam, Fiji, Canada and the mainland United States will facilitate the exchange of materials and further the building of this collection.

As a relatively young university, Hawaii does not have to buy many outdated books held by older institutions. On the other hand, by getting a late start, it has to pay current high prices for volumes which were relatively inexpensive when first published.

Another factor which helps to determine the needs of a university library is the size and nature of nearby libraries. The University of Hawaii is fortunate in having on the campus the library of the East-West Center, and depends heavily on it for Asian materials. To an important though lesser extent, the Bishop Museum and the Hawaiian Sugar Planters' Association supplement our holdings in research material and the Library of Hawaii in some reference holdings. However, these off-campus libraries offer only limited support, since they are for the most part quite specialized —not applicable, for example, to sciences curricula in which there has recently been such a great expansion.

Geographical isolation must be taken into account. University libraries in the Midwest, the Northeast and the Pacific Coast can partly depend on their neighbors' collections, as do Stanford and Berkeley, for example. The University of Hawaii is instead depended on by other institutions in the Pacific to supplement their resources.

Taking all these factors into account, determining an appropriate rate of expenditure for the library of a dynamic institution, growing in enrollment and in depth of academic program, is a complex calculation. A rule of thumb frequently used to ascertain the adequacy of library expenditures is to compute them as a fraction of the total budget for educational and general purposes. Budget analysis, made nationally and over many years, shows that the better universities spend between 3.5 per cent and 5 per cent of their educational budgets on the library. For example, Florida State University, also a young university, in 1965-66 spent 4.7 per cent of its instructional and general budget on the library. The Universities of Kansas and North Carolina, older institutions, spent 3.4 per cent and 3.5 per cent. The University of Hawaii spent 3.1 per cent during the same year. Considering that the University of Hawaii Library is trying to catch up with the needs of an expanding academic program, it should be spending at least 4 per cent of the total University budget.

Space for Books and Readers

Applying the conservative standard of providing seating space for 30 per cent of the student body, by the time the Manoa Campus reaches an enrollment of 25,000 around 1974 there should be 7,500 seats in the Manoa libraries. When the remodeling of the Sinclair Undergraduate Library is completed, there will be a total of 3,030 seats in the Sinclair and Hamilton libraries. Approximately 4,000 additional seats will therefore be needed within five years.

Should the Manoa Campus construct specialized libraries to house parts of its collection and provide space for readers, or retain its policy of establishing only multi-purpose or general libraries? Cost is one factor: there is no question but that decentralized or branch libraries are expensive because of greater staff salaries and duplication of books and journals. Furthermore, the increasing momentum of interdisciplinary research makes the traditional boundaries of subject fields almost obsolete; it is increasingly difficult to define the scope of subject collections. For this reason many universities are in the process of either closing or consolidating their specialized libraries. Finally, advances in new technology for copying, storing and transmitting printed materials will soon make it possible to place copies of catalogs and bibliographies and journal articles in departmental offices rapidly and inexpensively. The proposed printed catalog of the book holdings on this campus is an example.

The University's policy, therefore, continues to recommend against the establishment of branch libraries. Instead, major emphasis will be placed on the development of the Library's holdings, on improving still further service to all faculty and students, and on the construction of the second phase of the Hamilton Library. It is urgent that Phase II be built in the immediate future. Planning money is needed in 1969 to forestall a critical shortage of space for books and readers alike. This imminent bottleneck will reduce the effectiveness of the entire University if the construction is not expedited. Once completed, the enlarged Library plus the remodeled Sinclair Undergraduate Library should accommodate the foreseeable needs of the 25,000 student campus.

Extending Library Services: Comprehensive and Union Catalogs

A comprehensive catalog of all library materials available on campus, no matter where they are housed, is planned as a major improvement for library users. This catalog will include not only books, pamphlets and periodicals, but also audio-visual materials, language tapes, microfilms and the like, whether in the two University libraries, at the East-West Center, or at any other point on the Manoa Campus.

When the East-West Center Library building is completed, it will be inter-connected with the Hamilton Library on the main floor. By that time cards for the Center's holdings should be duplicated and interfiled into the general catalog, so that the resources of all major libraries on campus can be made available by consulting a single, comprehensive catalog.

It would be desirable, in view of the great gaps in the University Library collection, to add to the catalog a record of research materials available in other libraries in Honolulu. This has been done for periodicals and serials in the *Union List of Serials*, but not for monographic works. There is no way of determining precisely how many additional titles a union catalog for all Honolulu would provide, but a rough estimate indicates some 40,000 that are not available in the University libraries. With the cooperation of the other libraries on this island the University proposes to compile a union catalog, inclusive of all major collections on Oahu to which students or faculty members have access.

When the reclassification and inventory have been completed and the catalog has been consolidated as indicated above, the University plans to print its comprehensive catalog. By this means the contents of the Manoa Library will be made more readily available to faculty and staff throughout the University system, as well as to other users of the University's resources.

Facilities of the Library should be available to the Hilo Campus and the community colleges, as well as other units of the University, on the same basis as they are on the Manoa Campus. A telephone tie line or other communication channel connecting the libraries of the other agencies of the University with the Hamilton Library should make it possible for persons on each campus to use the collections and services of the central library as needed. In addition, the Library should explore with librarians on other campuses the feasibility of Manoa providing technical services to all libraries within the University system, thus avoiding unnecessary duplication in acquisition and in cataloging.

Selective Excellence

The University's basic policy of allocating its resources so as to seek excellence in a limited number of areas in which it has an inherent interest or advantage guides the development of the library collections. One area in which the University already has a reasonably strong position, and which could be turned into a collection of outstanding excellence, is the field of Pacific Islands studies—certainly a natural specialization of the University of Hawaii. By systematic expansion of this area, requiring only a relatively small amount of money, and by placing a curator in charge, the Pacific Islands Collection will be outstanding, one which will merit international appreciation.

Another field in which the University and its library is attaining excellence is marine biology. With a considerable collection already on the shelves, a carefully designed program of acquisitions continuously pursued over the next seven years would help make Hawaii one of the two or three places in the nation to which scholars would turn for excellence in marine biology.

A third area in which the University could develop an outstanding position is the field of communications technology and information sciences, including information retrieval. The resources of the Computing Center, the new Information Sciences Program and the Graduate School of Library Studies provide a strong base for this rapidly growing area of specialization and integration. The Library plans to support this field with the materials, textual and non-textual, it requires.

Computer Application to Library Service

Intensive research and experimentation in the application of computer capabilities to libraries are being conducted throughout the country. It is essential that the University of Hawaii be in position to take advantage of these new applications as they are proven to be practical, making such technical modifications as are necessary to adapt them to our special requirements.

As an example, after many years of experimenting, the Library of Congress will this year be able to furnish cataloging information on computer tape to subscribing libraries. Along with other computer-based indexes, this one will be carefully studied, and if found efficient and relevant to the needs of the University of Hawaii, will be subscribed to. The computer should also be instrumental in the preparation of the printed catalog, proposed above.

Undergraduate Library Program

Through a grant from the Carnegie Corporation, an experiment was undertaken in 1966 and 1967 to develop a program for the Sinclair Undergraduate Library so that it would offer more than study hall and reserve book reading facilities. This program demonstrated that each thing that was done to make it easier for students and faculty to have access to books and to library services resulted in an immediate increase in use of the books and services. Providing reference personnel next to the catalog doubled reference services almost overnight. Placing art books on display for a couple of hours each day in the lanai outside the Art Department greatly increased the use of art books. Two scholars-in-residence posted in the Library gave students an opportunity to talk to interested and interesting personalities who whetted their appetites for literature and music. This experience indicates that planning the Sinclair Undergraduate Library to provide not only assigned related reading material, but also for the student's own intellectual pursuits, should be rewarding.

The Sinclair Undergraduate Library is designed to have a listening area with multiple channels. Some of these could have regular programs in music appreciation, some could be used for dialing recordings of lectures or other materials that the student wants to review, and others could be used to call for recorded materials that would be placed on the channel as required by the student.

In addition, it is planned to use the walls in Sinclair Library for art exhibits. The Honolulu Academy of Arts and the Art Department have promised to lend art objects. By these and other means, the University will seek to develop in the Sinclair Undergraduate Library a wide range of cultural and general educational exposure, in addition to meeting the requirements for curriculum-related reading materials.

Instructional Resources Service Center

Since Academic Development Plan I was printed there has been considerable study of the purpose and scope of the Instructional Resources Service Center (formerly Communications Service Center). For administrative purposes, it has been made part of the University Library and some of its operations, such as the maintenance and distribution of films and audio-visual equipment, as well as reprography, have been placed in units of the Library itself. The aim of the reorganization has been to free the staff of the Center to work with faculty members in ascertaining their needs for augmenting their own lecturing and blackboard work in the classroom. Primary functions of the Center continue to be related to the production, design and instruction in the operation and effective use of various types of media for instruction and research.

These media may be thought of by faculty in three different ways, depending upon their knowledge of instructional processes, the way they teach and the way they expect students to learn: as teaching *tools* or extensions of the instructor to serve his immediate needs; as teaching *techniques* where a greater emphasis is placed on student involvement; as aspects of an instructional *technology* in which the roles of the teacher, student and media are evaluated and integrated in a more systematic way to meet specific objectives. The staff of the Center will work at each of these levels with individuals and groups of instructors.

Such basic services as closed-circuit television transmission, multi-media presentations and maintenance of permanent installations at Varsity Theatre, Spalding Auditorium and other large auditoria are provided by the Center, together with graphics production for instruction and research. Since this latter service, including photography for classroom and research use has been provided for teaching needs, demand for service has increased.

A media laboratory has been set up for instructing and advising staff, faculty and student operators in the technical operation and creative use of media for teaching and learning. Consultations, presentations and workshops for the use of media and curriculum development are becoming an integral and important part of the Center's operation.

Developments Under Academic Development Plan I

1. Completed first phase of the Thomas H. Hamilton Graduate Research Library.
2. Annual rate of book acquisitions and periodical subscriptions approximately quadrupled.
3. Reduced cost of acquiring and cataloging books.
4. Converted collection from the Dewey Decimal to the Library of Congress classification.
5. Completed binding of most unbound serial parts and pamphlets.

Projected Developments Under Plan II

1. Increase library acquisitions to bring the overall collection to a position closer to the median size of comparable universities, to make collections in selected fields excellent.
2. Start planning immediately for second phase of the Hamilton Library.
3. Show in the University Library Catalog all bibliographical resources available on campus; produce a printed catalog to make the University collections more readily available to users throughout the state.
4. Explore with the community colleges and the Hilo Campus possibility of centralizing technical services so as to relieve them of cataloging and other routine work.
5. Pursue research and management studies to determine practicability of using computers to improve the operation of the University libraries and to make bibliographical information contained in the Manoa libraries directly accessible to all other campuses of the University system.
6. Provide in the Instructional Resources Service Center consultation and workshops for faculty in the use of newer instructional technology and techniques, as well as the media services now customary.

Chapter 20: STATISTICAL AND COMPUTING CENTER

Purposes and Objectives

The role of the Statistical and Computing Center is to provide computing facilities and associated service for information processing within the University. In recent years the Center has been used for such diverse applications as the processing of geophysical measurements, compilation and printing of biographies and dictionaries, linguistic analysis, tallying votes in state and local elections and the analysis of football scouting data. It has been used in research and teaching in departments ranging from mathematics and engineering to geography and psychology, and its use is contemplated in art and architecture. The Center handles an ever-increasing load of administrative work necessary for the effective management of the campus and provides the faculty with facilities for test-scoring and analysis. Now hundreds of students use the computer every semester in regular classes, and in the near future probably more than half of the students will use the computer in connection with class work in order to gain an appreciation of its importance and potential. In addition, computer-aided instruction and automated retrieval of library information may eventually bring every student into frequent contact with computers.

Plans

The great increase in the role of computers and information processing affects teaching, research and service. Teaching about the theory and use of the computer will be handled largely by the Information Sciences Program (Chapter 9). Because of their importance to the University, research activities in computer-aided instruction and information retrieval are necessary. There are already a number of research projects in the information sciences area, and with the development of the Information Sciences Program many more can be expected. In order to coordinate these activities and encourage cooperation and communication among them, an Institute for Information Sciences is planned, as recommended by the President's committee on information sciences in 1967.

Service is the role of the Computing Center itself. It must acquire not only the additional computing capability, but also new types of equipment, such as random-access "data banks" and various types of

STATISTICAL AND COMPUTING CENTER

	Actual		Projected	
	1963-64	1968-69	1972-73	1975-76
Number of Classes (Using Computer)	8	50	100	175
Jobs Per Day (All Types)	96	750	1800	3500
Total Budget (Including both state funds and income from research grants)	$371,000*	$724,000	$1,200,000	$1,750,000
Personnel (FTE):				
Professional Staff	4	15	18	21
Graduate Assistants (Programming and consulting)	0	2.5	9	15
Civil Service	1	6	9	11
Student Help (Keypunch and computer operators)	3	15	18	21

*Excludes $210,000 for purchase of IBM 7040 computer.

remote terminals, including terminals which will provide ready access to the computer from all parts of the Manoa campus, from the community college and Hilo campuses, and from remote research sites.

The present facility, based on an IBM 360/50, has the features necessary for developing remote terminals and a time-sharing system, and some progress has already been made in developing such a system. Early in 1969 the facility will undergo a major expansion both in central computing power and in capabilities for remote terminals. It appears that a significantly improved "fourth generation" of computer equipment will become available about 1972, and the University plans early acquisition of such equipment in order to provide the most modern facilities possible for both research and teaching.

The computer arrangement of the University requires the support of the systems programmers to provide an operating system adapted to needs. The Center operates on an "open-shop programming" basis—each user provides his own programs. However, the Center must provide consulting services to help the users both with planning the use of the computers and with the problems they encounter while doing so. It is planned to maintain a core of full-time permanent staff, supplemented by an increasing number of graduate assistants to provide these services. As the Information Sciences Program develops, there will be an increasing number of competent graduate students seeking financial assistance and this type of experience. The actual operation of the computers is done by undergraduate students, providing them with experience and financial assistance, with full-time supervision on each shift. Key-punching services are also provided by student employees, with full-time supervision.

Developments Under Academic Development Plan I

1. Planned and implemented phased development of computer facility, originally involving use of the IBM 7040-1401 system, but proceeding to more complex equipment (currently IBM 360/50).
2. Built competent systems programming staff and developed time-sharing system suited to varied needs of University.

Projected Developments Under Plan II

1. Expand present computer facilities so as to develop remote terminals and time-sharing system throughout the University.
2. About 1972 be ready to utilize a "fourth generation" of computer equipment suitable for substantial contributions to both research and teaching.
3. Establish coordinated programs of research in information sciences.

Chapter 21: SUMMER SESSION

Purposes and Objectives

The summer instruction program at the University of Hawaii is one of the largest in the United States, enrolling approximately 21,000 students in 1968—more than the registration of the Manoa Campus during the fall or spring semesters. The program is administered by the Office of the Dean of the Summer Session, which uses its tuition revenues to pay the salaries of the summer faculty, drawn not only from the University of Hawaii but also from other institutions across the nation and abroad. Appointments to the Summer Session faculty are recommended to the Dean by the chairmen of the academic departments of the University. Currently, the Summer Session is divided into two six-week terms, running from late June to early September. Teaching institutes, workshops and special courses are accommodated with schedules of varying length.

An overall purpose of the Summer Session is to give variety and flexibility to the instructional programs of the University. Faculty members from other campuses, frequently outstanding scholars, are thus brought to Hawaii; new courses are designed and tried out; intensive instruction is provided for teachers and others who can become full-time students only in the summer; new or prospective students have this period to try the university experience, to determine if they like it and can do the work. Summer courses in Hawaii attract many students from the mainland (21 per cent in 1968) and some from other countries (5 per cent), but the largest group served (55 per cent) is made up of regular students of the University, candidates for its degrees and diplomas. Increasingly, University of Hawaii students attend year-round, lightening their course load during the regular semesters and compensating for this by taking courses in the summer. Thus serving as an adjunct semester, the Summer Session has put off demands that might otherwise be made to go to a quarter calendar. Certainly it would be difficult to use campus buildings and facilities on the Manoa Campus any more intensively than they are now used, however the academic calendar is set.

Burgeoning Enrollment, 1963-1968

Total enrollment more than doubled during the most recent five-year period, 1963-68, rising from 9,385 to 20,638. Responding to this enlarging student population, the summer curriculum grew from 537 to 1,474 classes, and courses in directed reading and research increased from 55 to 356. The average number of credits taken by the summer students remained constant at about 3.8 per capita, as the total number of credits taken by the students rose from 33,000 in 1963 to 84,000 in 1968.

The Summer Faculty

The tremendous increase in students and classes during the five-year period 1963-68 necessitated a concomitant augmenting of the Summer Session faculty, which accordingly grew from 362 in 1963 to 854 in 1968. The relative number of visiting faculty rose slightly, from 15 per cent to 20 per cent. As an indication of the experience and quality of the faculty, the 1968 summer staff included 180 professors (21 per cent), 135 associate professors (16 per cent), 188 assistant professors (22 per cent), 142 instructors (17 per cent), 128 lecturers (15 per cent), and 81 assistants (9 per cent).

Financing and Fees

The Summer Session office receives no state general fund appropriation and must operate with the revenues generated by its curricular activities, primarily the tuition fees paid by students. This income must pay for all direct instructional costs, such as stipends for the faculty and for laboratory assistants, readers, etc., and also for some of the supporting services provided by the campus libraries, the audio-visual center, the business office, the admissions and records office, etc., as well as the salaries and operating expenses of the Summer Session office itself.

A uniform tuition fee of $16 per credit hour is charged for Summer Session courses, a rate identical with that of the evening courses conducted year-round by the Office of Continuing Education. This rate is keyed to the salary structure of the University and is adjusted from time to time as that structure changes.

SUMMER SESSION

	Actual		Projected	
	1963	1968	1972	1975
No. of courses offered	390	766	1,030	1,100
No. of summer institutes and workshops	5	15	15	15
No. of students enrolled	9,385	20,638	29,600	39,400
No. of student credit hours	33,107	84,253	109,600	145,800
No. of summer teaching faculty	362	854	1,020	1,150

Distinctive Summer Offerings

In many respects the Summer Session is an extension of the fall and spring semesters since the bulk of the curriculum consists of the same courses frequently taught by the same faculty members, albeit on a more concentrated time schedule. However, the Summer Session also offers distinctive courses taught by visiting professors and specialists. Some 225 such summer-only courses were taught in 1963-68, or an average of 37 per summer. They included 71 in education, 67 in the humanities, 31 in the social sciences, 27 in foreign languages, and 18 in the natural and physical sciences. Summer institutes grew in number from five in 1963 to 16 in 1968, the latter including 4 NDEA and 3 NSF institutes. Four overseas study tours in 1963 grew to nine tours and three shipboard lecture courses in 1968.

The Summer Session office gave financial support to the East-West Philosophers Conferences of 1959 and 1964 and is similarly assisting in the preparations for the 1969 Conference. It also co-sponsors the annual Festival of the Arts of This Century, which may become a major summer-time event. An extensive program of educational and recreational activities is directed by the Summer Session Activities Office during the first term each summer to complement the academic curriculum.

Accommodating Further Growth

The pronounced growth of the Summer Session in the 1960's has outstripped the capacity of classroom facilities on campus during the morning hours, and each year more classes have had to be scheduled in the afternoon, and a few in the evening. Enrollment will almost certainly continue to climb; estimating conservatively, it will approach 30,000 by 1972. Problems of growth will be mainly logistic. The midmorning hours preferred by the great majority of students cannot possibly accommodate such numbers, so there must be a balanced spreading of departmental offerings across the hours of the day, and possibly also the scheduling of many more classes in the evening hours, after working out cooperative arrangements with the Division of Continuing Education, which also uses the classrooms at night.

Housing for mainland and foreign students will predictably become more difficult to find as enrollment continues to rise. However, the Summer Session cannot assume responsibility for locating or supplying rooms beyond the limited number available in campus dormitories. Locating housing for visiting faculty is the responsibility of the respective departments.

Diverse institutes and workshops, as well as courses not offered in the fall and spring semesters, will continue to highlight the summer curriculum. These include the nationally recognized Summer Institute on Asian Studies, programs seeking to upgrade or retrain school teachers in subject matter fields, and instruction in the newer media systems. For graduate students planning to become college professors, the Summer Session also can provide instruction in the art of teaching, a hitherto neglected function which the University now seeks to develop.

Curriculum Development; General Fund Support?

The Summer Session has adhered primarily to a credit-course curriculum, with the exception of certain courses in the English Language Institute and in Travel Industry Management. The Summer Session has begun experimentation with pre-college courses at the Hilo Campus, to help high school graduates seeking to overcome academic deficiencies before taking collegiate courses. This is a service to disadvantaged youth and others that should be vigorously supported on all campuses of the University system, particularly the Hilo and Community College campuses. To develop close rapport and articulation in these and other summer activities, the Summer Session Curriculum Committee includes the Administrative Dean of Continuing Education and Community Service and a member of the Community College central administration staff.

Since actual performance in collegiate course work generally provides a more reliable gauge of a student's ability than his scores in aptitude tests or his percentile class ranking, eligibility for Summer Session registration will be kept rather flexible. The opportunity to take college work will not be denied "marginal" applicants wishing to demonstrate that, whatever their past tests may indicate, they can do satisfactory collegiate work. The Summer Session Catalog clearly states that "admission to the Summer Session does not imply admission to the fall or spring semesters." At the same time, respectable performance in Summer Session courses is given due consideration if the marginal student seeks regular admission to the University, inasmuch as this is one of the few avenues open to such students for reappraisal of their ability to pursue work in higher education.

It has already been noted that the larger portion of the Summer Session enrollment are "regular" students, candidates for degrees at this university who use the summer as a third semester in completing their programs. The Summer Session office, working with the instructional colleges, has offered an expanding choice of courses for these students—within the limits of the self-support financing under which the Session operates. For the most part, this arrangement has worked out well for students and faculty members. However, there are some areas—the natural sciences are probably the extreme case, with only a handful of courses given in the summer—where tuition receipts cannot finance courses, and, consequently, students are not offered the curricular choices where necessary for full utilization of the summer period.

There is also a question of social policy. Students attending the Summer Session pay tuition per credit hour almost double that paid by students in the regular semesters—$16 versus $9. This differential has not been sharply challenged yet, but it may well be when the Summer Session tuition is next increased to cover increasing costs of instruction.

Virtually identical problems of curriculum span and tuition pricing are encountered by the Office of Continuing Education with respect to its evening credit courses, and these problems are discussed below (next chapter) in the section on the office. The recommendation made there applies to the Summer Session—that it be included in a comprehensive study of tuition fees and funding of instructional programs at the University.

Developments Under Academic Development Plan I

1. More than doubled enrollment, curriculum and faculty; financed scheduling of additional upper division and graduate courses with tuition income from heavy registrations in basic lower division courses.
2. Instituted second six-week term, absorbing the traditional three-week post-session and the more recent five-week term.
3. Established uniform fee, replacing separate registration, tuition, laboratory and course fees, thereby facilitating registration; extended registration period to several days before beginning of Summer Session.
4. Undertook sponsorship, together with University of Hawaii Foundation, of Festival of the Arts of This Century; provided continuing support of East-West Philosophers Conference, the Summer Institute on Asian Studies and other programs with international aspects.

Projected Developments Under Plan II

1. Offer instruction in art of teaching to doctoral candidates and others planning to become college professors.
2. Make additional opportunities available to disadvantaged or marginal youth to receive instruction in summer; continue strong support to Upward Bound Program and offer pre-college courses aimed at helping high school graduates to become better prepared for collegiate work.
3. Coordinate curricular offerings with those of the community colleges and the Division of Continuing Education, in order to expand service throughout the State.
4. Encourage innovative exploration of new fields of knowledge, pedagogical method and interdisciplinary courses, so that University education can more nearly become an enterprise "as broad as human endeavor and as high as human aspiration."

Chapter 22: CONTINUING EDUCATION AND COMMUNITY SERVICE

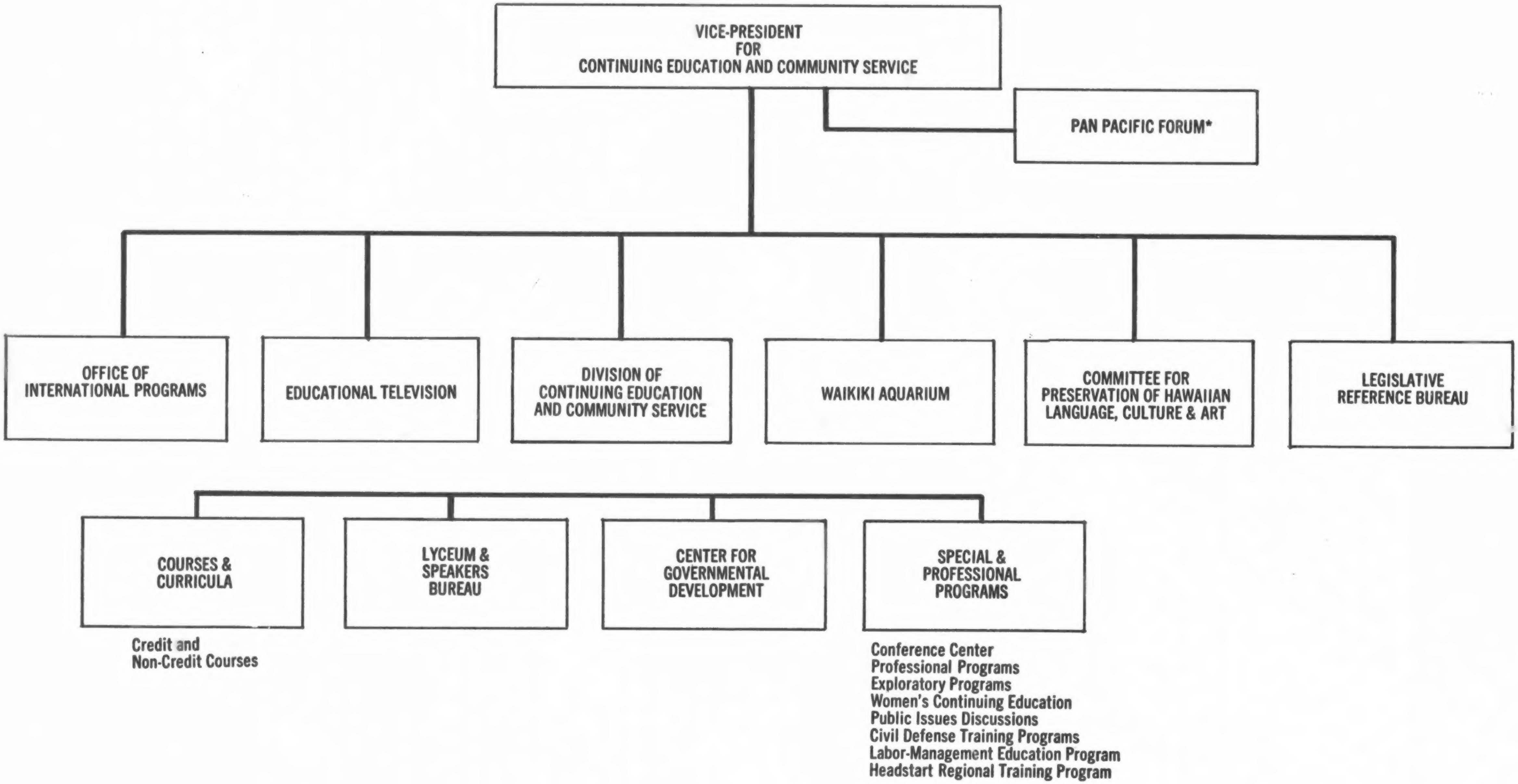
Purposes and Objectives

The establishment of the Office of Continuing Education and Public Service at the University of Hawaii was formalized in 1967, in recognition of the fact that a university in today's world is inextricably involved in social change and improvement. In addition to teaching and research, there must emanate, from both faculty and students, ideas, knowledge and creativity that cumulatively and profoundly affect the entire society of which the university is a part.

However, too much engagement by the university in public service can either turn the university into a "service station," or so directly involve it in restructuring society that the major share of its energies and resources are perpetually engaged in external controversy. In trying to work in the practical middle ground, the University of Hawaii continues a deliberate consideration of such questions as: "How much public service?", "What kinds?", and "How can a consistent policy for control of the mushrooming functions be developed and administered?"

The six major responsibilities of the new Office are common to most large universities involved in continuing education as an arm of public service: (1) opportunities for adults out of school and part-time college students to pursue degree programs; (2) professional and career development programs to enable persons in the community to keep abreast of their professional fields and to advance in their particular career objectives; (3) consultative services which help bring the resources of the University to bear on the solution of community, state and national problems; (4) education for citizenship responsibility; (5) educational programs for personal growth and development; (6) programs which contribute to the cultural enrichment of the people of the state.

OFFICE OF CONTINUING EDUCATION AND COMMUNITY SERVICE


VICE-PRESIDENT
FOR
CONTINUING EDUCATION AND COMMUNITY SERVICE
PAN PACIFIC FORUM*
OFFICE OF INTERNATIONAL PROGRAMS
EDUCATIONAL TELEVISION
DIVISION OF CONTINUING EDUCATION AND COMMUNITY SERVICE
WAIKIKI AQUARIUM
COMMITTEE FOR PRESERVATION OF HAWAIIAN LANGUAGE, CULTURE & ART
LEGISLATIVE REFERENCE BUREAU
COURSES & CURRICULA
Credit and
Non-Credit Courses
LYCEUM & SPEAKERS BUREAU
CENTER FOR GOVERNMENTAL DEVELOPMENT
SPECIAL & PROFESSIONAL PROGRAMS
Conference Center
Professional Programs
Exploratory Programs
Women's Continuing Education
Public Issues Discussions
Civil Defense Training Programs
Labor-Management Education Program
Headstart Regional Training Program

*Projected.

> The increasingly technical nature of most occupations, the constant accretion of new knowledge in the professions, the complex and puzzling local, national and international problems confronting our citizens, changing values and the quest for greater purposefulness and meaning in life, all make it abundantly clear that the schooling of one's youth can no longer suffice for a lifetime. Lifelong learning has become a virtual necessity in a democratic, technological, highly urban civilization if its people are to achieve their fullest occupational and professional potential, effectively fulfill their civic obligations and realize their maximum intellectual and aesthetic growth and development. (Abbott Kaplan, *A Study of Continuing Education and Public Service at the University of Hawaii,* 1967)

Major Programs

Two of the branches of the Office shown in the chart at the beginning of this chapter, which relate directly to the overall academic development of the rest of the University, will be first discussed. Those programs which have immediate influence on other programs of the University, and which have a reciprocal dependence upon them, are the Division of Continuing Education and Community Service (formerly the College of General Studies) and the Educational Television Network.

DIVISION OF CONTINUING EDUCATION AND COMMUNITY SERVICE

The major component of the Division is entitled "Courses and Curricula". It offers both credit and non-credit courses on the Manoa campus in the evenings and at a number of other centers on Oahu and the neighbor islands, including military bases and high school and community college sites; it also carries special programs on Kwajalein, Marshall Islands, and on Midway. The Courses and Curricula Program is for the most part financed by tuition fees, although some programs are supported by contracts. Lecturers are selected from the University faculty, or from among other qualified persons in the community, generally with departmental liaison and approval.

The Lyceum and Speakers Bureau brings a variety of cultural events to the people of the neighbor islands and Oahu and assists organizations within the state in seeking suitable speakers.

The Special and Professional Programs provide planning and management services for conferences and institutes, mostly ranging in length from two days to two weeks. They include in-service training institutes for teachers, civil defense courses and short courses for professional practitioners. Development of a Continuing Education for Dentists Program and a Women's Continuing Education Program is planned.

The Center for Governmental Development was established by legislative action to provide in-service training for government officers and employees through courses, workshops, seminars and programs in public administration and to serve as a clearing house for information and training in government-management practices, techniques and new technologies. The Division places top priority on developing the Center.

Credit Courses and Tuition Policy

Policies concerning the credit courses offered by the Division (ex-College of General Studies) have been repeatedly discussed by the University over the past several years. These courses are taken each year by some 4,000 students, many of whom rely on evening instruction for part of their degree programs, or to help them pursue other educational objectives. They pay $16 per credit hour—identical with the Summer Session—while students enrolled in the same courses offered through the regular instructional colleges pay $9 per credit.

The differential is substantial and has raised questions of educational and social policy. It has been argued that persons who have to get their education at night because of daytime jobs or domestic responsibilities should not be required to pay more than students who can attend the daytime programs, and that their education should be subsidized by state appropriation to the same degree as for daytime students. The contrary argument points out that it is a special convenience for students to offer instruction at night, or at places off the regular campus, as the Division of Continuing Education does; and that a price differential for this convenience is justified—hence the frequency of such a differential in American universities.

At present tuition levels the differential is probably not critical for most students; even $16 is not a high price for university education. However, and particularly if tuition fees are increased by the State Legislature, the University should consider this differential in the light of the state government's policy toward the division of costs of education between the student and the state. The examination should embrace the fee structure of the entire University system, including the tuition of the Community Colleges, which is $5 per three-credit course, compared with $27 in the "regular" University program and $48 in the Division or Summer Session. For its part, the University be-

CONTINUING EDUCATION AND COMMUNITY SERVICE

UNIT AND ACTIVITY	1963-64	1968-69 (estimated)	1972-73 (estimated)	1975-76 (estimated)
Division of Continuing Education (General Studies)				
Numbers of students or participants:				
Credit courses	8,278	10,700	13,000	15,000
Non-credit courses	3,804	5,200	6,300	7,000
Lyceum	5,000(est.)	15,750	20,000	22,000
Other programs	2,352	10,000	12,000	14,000
Legislative Reference Bureau				
Number of requests processed	684*	1,400	1,600	2,000
ETV				
Broadcast hours	—	30,370	76,760	76,760
No. programs produced	—	859	1,250	1,484
Asia Training Center				
No. trainee weeks	—	1,750	n.a.	n.a.
No. training cycles	—	12	n.a.	n.a.
Peace Corps Training				
No. trainees	762	2,000	n.a.	n.a.
No. projects	12	24	n.a.	n.a.
Waikiki Aquarium				
No. visitors	255,000	290,000	325,000	340,000

*1963-64 was a budget (short) session of the Hawaii Legislature.

lieves that the price differential between "daytime" and "nighttime" courses should be removed, and advocates accomplishing this by a gradual increase in general fund support of the Division, so that by the end of this Plan period, 1975-76, the tuition fees will be equal for all University credit courses.

Additional general fund support would make it possible to present a more complete range of courses in fields of interest to the student clientele. The Division has endeavored to offer sequences in undergraduate curricula for which there is a demand and which can be effectively offered at night—English, history, accounting, education, etc.—but the necessity of having tuition receipts cover the cost of instruction makes the planning of such sequences difficult. Even with this present financial constraint, the Division plans to round out its offerings so that students can complete coherent blocks of their baccalaureate programs, but its ability to do this will be greatly enhanced by general fund support. Student advising is a basic problem, as it is in the College of Arts and Sciences, and will receive more attention and support.

A shift over to general fund financing of the Courses and Curricula program must ensure adequate support for other phases of continuing education, such as the Lyceum and Speakers Bureau, which are now partially financed out of tuition fees collected by the Division for its courses. Better policy would be to finance these programs by state appropriation, supplemented by the grants which the University can attract from the federal government, private foundations and from other state agencies.

It was noted above that the credit courses in the Division of Continuing Education are taught by lecturers selected from the University faculty, teaching on an overload basis, or by other qualified persons appointed with the approval of the appropriate department. There have been suggestions to extend the curricular responsibilities of the departments to the entire instructional day, including evening classes. However, after considerable discussion, it was felt that the varying nature of the clientele served during evening classes and at off-campus centers, which includes non-degree students, incentive-track public school teachers, professionals needing refresher courses, and generally older students, was such that the existing structure under Courses and Curricula was both practical and appropriate. In the future, the Division plans even closer liaison than exists at present with instructional departments in the selection and scheduling of such courses, as well as in the appointment of instructors.

At present, the Division has a standard form which recommends that courses be offered on the basis of past experience and existent data. (Experience and data relate to such matters as the kinds of courses desired and petitioned by various adult clientele, the needs of off-campus centers as transmitted by educational directors, the special-fund generating potential of courses, etc.) The form also contains spaces for instructors to be appointed by the departments. In addition, departments themselves recommend the initiation of courses and the appointment of instructors subject to coordination with the Division's program specialists. In any event, the ultimate decision as to the approval of both courses and instructors resides with the instructional departments.

The Division nevertheless feels that improvements can be made in order to assure professionalism of both courses and instructors. For example, the forms can include provisions for approval of courses and instructors not only by the appropriate departments but also by their respective college deans. For another example, the forms can include approval by the Graduate Dean where graduate degree credit courses are involved. The feasibility of such added control measures is being investigated.

Non-Credit Courses

In the area of non-credit courses, the Division is committed to providing a fuller array of offerings, following the general guidelines of the Kaplan Report. In doing so, more attractive and more academically substantial courses will be scheduled, using both classrooms and the state's educational television network. In 1969-70, plans are to schedule non-academic community leaders in various non-credit courses, such as on the legislative process, businessmen and politics, and the politics of conservation. These leaders will come from relevant areas within the larger community of the state. The present fees for non-credit courses will be maintained until the entire tuition structure of the University system is examined by the legislature.

Specific Objectives

Listed below are specific areas of concentration targeted by the Division of Continuing Education and Community Service for the next planning period, in addition to the general objectives cited above:

1. Initiate and develop specific programs under the Governmental Development Center with seed-money from U.S. Higher Education Act grants and from the Department of Personnel Services, in coordination with the State Director of Personnel Services.
2. Increase counselling services both to students enrolled in the Division's programs and to others seeking enriching activities.
3. Develop more curricular sequences, both of credit and non-credit courses, to provide certificate, degree or other clear goals.
4. Develop integrative themes through a number of different types of activities—Lyceum, non-credit courses, television—to provide deeper and more thorough educational experiences.
5. Initiate research into the reasons why certain groups (e.g., women and retired persons) are not now responding to the Division's programs in the numbers expected, and try to devise new programs whose styles and content do fit their needs.
6. Similarly, seek ways to assist low-income groups, isolated communities, problem juveniles and other disadvantaged pockets of society, frequently serving as an adjunct to other agencies already working in these fields.

DIVISION OF ETV BROADCASTING

Educational television is designed to provide informational and educational experiences based on and developed through broad areas of intellectual interest and need. The Hawaii ETV Network is responsible for broadcasting programs which are designed to inform, develop skills and abilities, increase understanding and develop attitudes. The service offers both formal and informal education for the children and adults of the state.

The Hawaii ETV Network, serving most of the state's population, in 1967-68 transmitted 8,914 hours of television broadcasts and completed 856 production units. When the initial phase of developing the state network is complete—probably in 1969—the two major stations and 12 supporting stations of the Hawaii ETV Network will reach 99 per cent of the schools and potentially 97 per cent of the adults in the state.

The Hawaii ETV Network is directed by a State ETV Council, with administrative responsibilities divided between the State Department of Education and the University. The Division of ETV Broadcasting represents the University in the cooperative venture. Three types of programs are broadcast: in-school programs designed to supplement and enrich regular school instruction; in-service teacher training programs for public and private school teachers throughout the state; general adult education programs as well as extension programs of the University of Hawaii. The Department of Education is responsible for development of the first two programs, the University for the third. The University produces and transmits all programs.

The Division also has responsibility for developing and constructing stations in the network for the local production of all programs developed by government agencies, community organizations, the University and the Department of Education. The Division produces closed-circuit television instructional lessons in use on the University of Hawaii campus, while Instructional Resources Service Center distributes these programs to the classrooms.

Working in conjunction with the Division of Continuing Education and the instructional colleges of the University, ETV envisions a major increase over the next several years in the number of programs produced for adult education.

As enrollments increase at the University of Hawaii and in the schools of the state, there is a need to determine how the integrated use of technology can effectively increase efficiency in learning. The proliferation of small closed-circuit television systems in the University, community colleges and the State Department of Education has created opportunities as well as problems in the effective use of educational media. Unquestionably the Division will find greater demand for "dubbing services" for the small "slant track" video-tape machines. Greater use will be made of closed-circuit television on individual campuses and schools. Hook-ups between the Manoa Campus, the Hilo Campus and the community colleges may be in use by the end of the plan period.

There will be need of district production centers, where ETV programs and lessons may be produced for district or local use. The possibility of creating regional production centers should be explored with the DOE and the community colleges. The Division plans for a gradual increase in production and programs, leading to a doubling of the present services by 1975. These objectives are consistent with the current pattern of increase in educational broadcasting in the rest of the United States.

PAN-PACIFIC FORUM

To establish cooperative approaches to the solution of state, national and international problems, the University plans to build a Pan-Pacific Forum. Its purpose will be to serve the growing needs of governments, universities and the peoples of Asia, the Pacific and the U.S. for a facility where scholars, researchers, students, officials, businessmen, professionals and others can confer on matters of mutual concern and importance. Still in the early planning stage, the Pan-Pacific Forum is visualized as a large conference center and continuing education complex near the University's Manoa campus. It will contain a variety of facilities when completed, capable of housing conferences at many levels, and serving as the center for continuing education in the state.

LEGISLATIVE REFERENCE BUREAU

Purposes

The basic objective of the Legislative Reference Bureau is to strengthen the legislative branch of the Hawaii government by: providing legislators and other participants in the government policy-making process with research, analyses and data relevant to the making of informed choices among alternative courses of action; and informing the public of legislative processes and procedures. The research and related services of the Bureau are also available to the executive branch of state government, to the University and to other governmental agencies. Its research publications and legislative aids are generally available to the community.

Faculty members on the Bureau's staff participate in academic activities in many ways: teaching courses in their specialties (business law, public administration) from time to time; serving on University committees; supplying information or professional advice to other faculty members and to students with respect to the law, the legislative process, public administration, etc. The Bureau's reference library is frequently used by faculty and students.

Present Status

Each of the 50 states has a legislative service agency similar to the Bureau, but the Hawaii Bureau is exceptional in being a department of the state university, responsible to the Vice President for Continuing Education and Community Service. Regular quarters of the Bureau have been in Sinclair Undergraduate Library, but during legislative sessions the Bureau establishes temporary offices at the capitol.

The permanent staff (now 15) includes attorneys, political scientists, reference librarians, and clerical employees. Consultants and other contractual employees are retained as needed to assist the Bureau when special knowledge is called for or to help with peak work loads.

The Bureau's primary client is the Hawaii Legislature. Bureau policy requires the rendering of objective and confidential services to members of both political parties. Bureau activities oriented to legislative needs include: conducting research projects and preparing reports; drafting bills and resolutions; providing services to legislative committees during legislative sessions and interim periods; compiling data, preparing comparative tabulations, and summarizing and analyzing proposals; preparing and publishing legislative aids including a cumulative index of bills and resolutions, a table on the current status of legislative measures, and a digest and index of laws enacted; conducting seminars for legislators and legislative employees; and transmitting designated information to legislators, including a periodic listing of opinions of the Attorney General.

The Bureau performs a number of services for the Governor and executive agencies of the state government, including furnishing information, performing limited research, preparing compilations of laws and administrative practice, and serving on public committees concerned with statute revision and topical problems, such as voting machines, traffic safety and consumer protection laws. It periodically prepares a comprehensive directory of state and local government departments, boards and commissions, and officials. The Bureau serves as the state's liaison with similar agencies in other parts of the nation. The Bureau also responds to many informal requests from legislators, administrators, educators, and the public in Hawaii and elsewhere by providing information or minor services.

The governmental research library maintained by the Bureau contains approximately 49,000 books and pamphlets and 150 periodical titles in public administration, state government, education and related areas, including a large collection of state statutes. The Bureau library facilities are utilized by faculty members, University students and governmental officials. Most of the collection is not duplicated in the general University libraries.

Program Development

The Bureau is tentatively scheduled to move from Sinclair Undergraduate Library to the new state capitol in 1969, merging its library with that of the Legislative Auditor. The Bureau proposes to make this consolidated research collection in the state capitol available to faculty and students.

Moving Legislature and Legislative Reference Bureau to the new capitol building will probably induce changes affecting the Bureau's activities. At the least, the introduction of data processing equipment to the printing, indexing and locating of legislative proposals will affect functions and perhaps staffing of the Bureau.

The possibility now offered of spatially combining the Bureau with the Legislative Auditor, an agency already reporting directly to the State Legislature, and with the Revisor of Statutes who now reports to the Judiciary, may change the status of the Legislative Reference Bureau more fundamentally. One change, repeatedly considered by the legislature in years past and again said to be up for discussion, is to create a council of legislators which would direct a consolidated Reference Bureau-Auditor-Revisor's office. Should this take place, the Bureau would be moved not merely off campus but outside the effective control of the University.

Until and unless a reorganization of this nature occurs, the University will plan to continue its present relationship with the Legislative Reference Bureau. Not only is this relationship based on statute law, which only legislation can change, but it is one of mutual advantage. The presence of the Bureau enriches the resources of the University and adds to its range of competency; its placement at the University enables the Bureau to recruit well qualified professional staff members and to obtain for its research the diverse knowledge of the campus faculty.

However, should the Bureau be made part and parcel of the legislative staffing service, directly responsible to legislative authority, then it would be appropriate to end the quarter-century long attachment of the Legislative Reference Bureau to the University of Hawaii.

Developments Under Academic Development Plan I

1. Established the Office and Division of Continuing Education and Community Service, the former encompassing all the programs discussed in this chapter, the latter succeeding the College of General Studies.
2. Inaugurated Speakers Bureau in the Division.
3. Established the Educational Television Network; produced both broadcast and closed-circuit television programs.

Projected Developments Under Plan II

1. Expand credit and non-credit course offerings, with gradual increase in general fund support for former.
2. Develop integrative themes in activities of Lyceum Program, Special Programs and Professional Programs.
3. Systematically evaluate ongoing programs to determine patterns of common needs in the community.
4. Establish direct production centers for ETV; double amount of present services in broadcast ETV, particularly for adult education.
5. Construct and organize the Pan-Pacific Forum for state, regional and international meetings, as well as a center for continuing education in Hawaii.
6. Build up Center for Governmental Development.

Chapter 23: OFFICE OF STUDENT AFFAIRS

Purposes and Objectives

The University of Hawaii shares with many American universities and colleges the tradition of concern with both the intellectual and personal development of its students. This policy is reflected in the varied services carried on under the auspices of the Office of Vice-President for Student Affairs. The diverse functions of the office have been established over the years to safeguard and improve the students' educational opportunities and to lessen those obstacles—physical, monetary, environmental and cultural—that sometimes hamper educational accomplishment. The names of the eight units organized under student affairs suggest the varied range of the office's functions:

Admissions and Records; Student Housing; Counseling and Testing Center; Financial Aids; International Student Office; University Placement and Career Planning; Bureau of Student Activities; Student Health Service.

There are, of course, many students who have little occasion to make use of the services, other than for purposes of registration. They live off campus, have few difficulties, or cope with their problems without using campus facilities. While its student clientele is thus by no means coextensive with the total Manoa enrollment, the office is nevertheless concerned with all students as part of the community and with the character and quality of student life. This breadth of concern is particularly true of counselors and specialists in testing and guidance.

As professional practitioners, counselors work within a frame of general theory related to personality and maturation. To serve successfully the needs of the individual student, they must at the same time have an extensive knowledge of various social contexts, both on campus and off. Likewise, as soon as service becomes more than one of merely passing along factual information, and takes on the form of advising (making suggestions), or assistance with emotional matters or problems of social functioning, the counselor must be able to draw upon his professional understanding of the student as an individual and of the student's development as a whole person. By affirming the principle of the whole person, the Office of Student Affairs is able to make a special contribution to the student's educational experience. This contribution supplements the more specifically intellectual aims of the teaching colleges. Rather than subscribing to the policy of acting *in loco parentis*, now generally outmoded, the office makes available a variety of basic services which each student may freely seek out according to his needs.

The work of the Office of Student Affairs has been much affected during the past few years by many of the same trends visible on the mainland. Among these are: growth in enrollment; an increasing percentage of students from other institutions and from overseas; more pronounced professional orientation among students and faculty, simultaneous with a "search for identity"; sophistication of interests and cultural expression among students, especially in extracurricular activities. Broad generalizations, however, can be misleading. What is safe to say is that the present size, nature and location of the University make for a highly diverse student body and an increasing pluralism of collegiate styles. All the variables of student circumstance and character influence and condition the work of the Office of Student Affairs. Size alone, rapidly approaching a maximum enrollment of 25,000 on the main campus, presents difficulties, in a pattern familiar to mainland institutions:

> . . . increasing red tape, from student registration to top administrative offices; automation and depersonalization of procedures; increasing loss of student-faculty contact, in, as well as outside the classroom; student demand for a "voice" in the fundamental organization of instruction and extracurricular affairs; . . . and new buildings everywhere, but too few devoted to accommodations within which students can conveniently study, hold meetings, and socialize . . . . *

The commuter character of the University and its location in the city of Honolulu markedly affect the style and quality of student life both on campus and off. Students tend to disperse at the end of the day, unless there are adequate facilities for study on campus, plus social attractions, student meetings and cultural enrichment to suit varying tastes. In all these respects, although progress is being made, much remains to be done to keep up with the rise in enrollment and expressed student needs.

The commuter system has both disadvantages and advantages. The urban setting releases the University from responsibility of having to satisfy the students' full range of housing, health and economic needs. The city, with its attractive physical scene and interesting ethnic variations, provides a stimulating cosmopolitan atmosphere. The growth of tourism and consumer values in living, together with increasing wealth in the form of cultural and artistic events, do much to offset the limitations of the commuter pattern of educational experience. The most pressing problem concerning student affairs, so far as the office is concerned, is the extreme scarcity of housing, whether on or near the campus or in Honolulu at large. One encouraging development is a plan, under negotiation, to build a complex of private dormitories on the nearby Chaminade College campus. Projected terms of the plan

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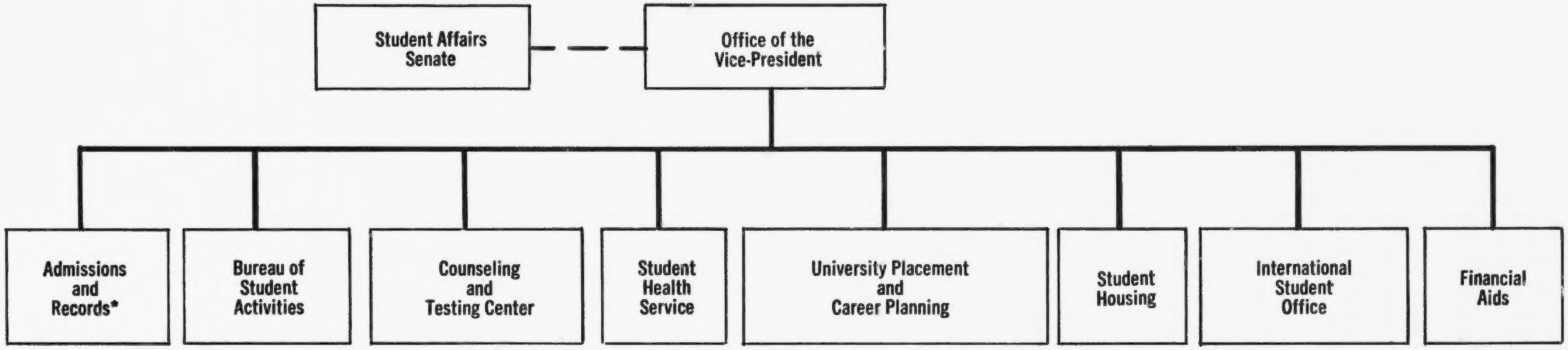
***First Supplement to the Academic Development Plan of the University of Hawaii*, **January, 1966, p. 14.**

OFFICE OF STUDENT AFFAIRS


Student Affairs Senate
Office of the Vice-President
Admissions and Records*
Bureau of Student Activities
Counseling and Testing Center
Student Health Service
University Placement and Career Planning
Student Housing
International Student Office
Financial Aids

* Proposed to be transferred under Vice-President for Academic Affairs.

For statistics of operations, See "Appendices," p. 165.

would guarantee rental of approximately 700 beds for University of Hawaii students.

One of the central responsibilities of the Office of Student Affairs is to provide and locate student housing. When it does not exist in sufficient supply, measures must be taken to remedy the deficiency with utmost speed.

STUDENT HOUSING

The Office of Student Affairs recognizes that residential facilities for students can offer broad educational values as well as serve to equalize educational opportunities by providing good living quarters and study conditions at relatively low cost. Among the basic purposes of the student housing program are:

1. To provide student residents opportunities to identify themselves as persons with living groups significant to them, and to develop their individual talents, abilities, leadership attributes, intellectual curiosity and cultural appreciation.
2. To increase, as an aid to motivation and learning, open opportunity and range of communication between students, faculty and the broader community.
3. To help develop individual and group responsibility.
4. To provide a material environment which will contribute to physical and mental health and be conducive to good academic work.
5. To supply a good housing environment at a cost students can afford.

The above goals, reflecting the policies of the housing staff, are based on the view that students are young people in the process of discovering their adult selves. As broad objectives they have been formulated, though not in a vacuum, quite apart from the acute and overriding housing shortage which prevents their full implementation.

No one supposes that intellectual habits could or should become the exclusive basis of human interaction. Suitably designed and well operated living quarters, staffed by persons devoted to the goals just outlined, offer an effective setting for fostering self-directed planning and decision-making both with respect to academic matters and the many other areas in which students act. The experience of group-living also can encourage many modes of interpersonal experience appropriate to the development of a sense of community among faculty and students and between both groups and the community at large.

The Housing office has given strong support to the experimental creation of an instructional facility in Johnson Hall, a men's residence hall, which seeks to create opportunities for students to integrate their classroom work with co-curricular activities. Such "living-learning" facilities will be sought in residence halls constructed in the future on the Manoa campus.

ADMISSIONS AND RECORDS OFFICE

The primary functions of the Office of Admissions and Records, essential to the efficient administration of the University, its good relations with the people of the state, and the academic history of undergraduates and graduates, include the following:

1. To provide admission information service for prospective students, applicants, high school officials and the general public.
2. To process and evaluate student applications for admissions, determine eligibility of applicants, and respond to applications.
3. To organize and publish a schedule of classes for each term on the Manoa Campus, working in close cooperation with the instructional colleges and schools.
4. To conduct registration each semester and summer session.
5. To help the Office of Institutional Research and the Management Systems Office maintain a student information system which provides current information about individual students to authorized offices throughout the campus, as well as statistical reports analyzing space utilization, distribution of grades, instructional costs, teaching loads, etc.
6. To maintain accurate and up-to-date files and permanent records of current and former students.

The staffing program in the office has not kept pace with the rapid growth in student enrollment over the past ten years. The average number of registrar and admissions office employees per 1,000 students on other campuses of comparable size (such as the University of California and the state colleges of California) is above 5 workers to 1,000 students. The ratio at the University during Fall 1968 was 17,082 to 35, or 2.05 workers for 1,000 students. If the Office of Admissions and Records were staffed at the ratio of 5 to 1,000 it would have approximately 85 workers. Understaffing has reached a point where planned improvement to bring the number of personnel up to a level of reasonable adequacy is critical, particularly in view of the recommendation in this Plan that the admissions procedure for the entire University system be centralized. (See Chapter 1.)

Increased mechanization of activities in the office should greatly improve efficiency, especially the use of computer-aided scheduling and registration. Much of the work of this office, particularly the scheduling of classes and reporting of grades, is carried out in close collaboration with the colleges and academic departments. To improve and expedite communication, at the beginning of the next academic year the office will be placed under the Vice-President for Academic Affairs. The transfer will serve to make more explicit the responsibility of the several colleges in setting policies for the admission of students to the Manoa Campus.

COUNSELING AND TESTING CENTER

The general purpose of the Counseling and Testing Center is to offer to students and faculty a range of psychological services, all of which contribute to student achievement and personal growth. The three main functional areas of the Center encompass counseling and testing services, graduate intern training supportive to the graduate curricula, and staff research.

The primary activity of the Center is focused on the counseling process, where the concern is not only academic success but the total development of the student as a person. A variety of specialized services are provided by a team of psychologists, psychiatrists and social workers, who utilize both individual and group counseling techniques. Assistance ranges from advisory exploration for the sake of the student's academic and personal growth to fuller intervention should a crisis in mental health arise. The emphasis during the next few years, however, will be on expanded work with students who are relatively free of deep emotional difficulties. As part of its total mental health effort, the Center systematically serves as a referral and consultative resource to departments and agencies on campus, as well as to the wider community.

Another major emphasis is the academic-vocational development of students. Facing an increasingly complex society, the student often needs assistance in making a responsible decision regarding his role in that society. The Center seeks to help the student clarify and define his academic interests and vocational goals. The basic counseling process is supplemented by an extensive vocational testing service and library. In order to awaken and release the achievement potential of the student, the Center offers reading and study skills sessions. A comprehensive diagnostic program is being planned to help students develop their full academic promise.

Services of the staff are frequently sought by members of the larger state community. To meet this need, the Center offers limited assistance on a fee basis through the Veterans Administration Educational Program and a Community Vocational Counseling Service.

Testing and evaluation are integral parts of the counseling process. In addition to the tests often required in the counseling relationship, the staff is responsible for coordinating and administering many of the national testing programs for professional certification and entrance into graduate schools. The staff also offers consultative and evaluative services in testing to University departments.

As an agency of an academic institution, the Center has systematically strengthened its supportive role in the education of psychological counselors. Qualified students in the departments of Psychology and and Educational Psychology, the School of Social Work and the Human Development Program in the College of Tropical Agriculture receive intensive practicum or internship experience under qualified staff supervision. In addition, related courses in these departments are taught by Counseling and Testing Center psychologists. Members of the Center staff participate in NDEA Summer Counselor Training institutes. This effort is part of an attempt to meet the great demand for trained mental health workers in Hawaii. Extramural support is being sought for full-time graduate training supervisors and stipends for internships.

Because of its institutional setting, the Center recognizes its obligation to advance knowledge and improve practices in the helping professions. Basic changes are now taking place in the theory and practice of counseling, and the Center is making a concerted effort to become a significant part of this movement, which is reorienting the counseling services with respect to psychology.

Until recently, the research staff of the Center devoted much of its effort to institutional research. The establishment of the Institutional Research Office has shifted the focus of the counseling staff to concentration on clinical problems. As a result of this redefinition of goals, the staff will conduct, beginning in 1969-70, a major research program funded by extramural grants. Such research activity will not only directly contribute to the professional skills of the unit but will simultaneously strengthen the supportive graduate training program.

FINANCIAL AIDS OFFICE

The Financial Aids Office, projected in Plan I, is now a reality. Resources it administers to support students total approximately $3,000,000. These include scholarships from public and private sources worth about $261,000; loans from federal and private sources of $393,000; the federally-funded Educational Opportunity Grants of $205,000; Student Employment of about $2,000,000 in state general funds; federal and special projects, plus the Work-Study Program which at present provides over $500,000. This office also handles the paper work and counseling of students receiving Veterans and Social Security benefits, as well as the certification for over 800 federally-insured and United Student Aid loans. In the past two years much has been done to integrate and streamline procedures and policies. However, each program produced serious backlogs of work resulting from critical understaffing, which hampered prompt service.

The main task of the next five years involves organization, improved service (particularly in disseminating information) and research. Two undeveloped resources are available to achieve efficient organization. The first is data processing service for record-keeping, reporting, retrieving, identifying and selecting, and the second is the College Scholarship Service of the American College Testing Service Program, for processing and uniform evaluation of student financial aids applications. In progressive programs throughout the country, data processing systems complemented by evaluation through the College Scholarship Service are considered indispensable. Not so dramatic, but equally important in smaller area of work, is the development of proper procedures and relations with the Business Office for accounting and reporting functions. Similar coordination with the Admissions Office is necessary to continue to serve the Veterans Administration and the Social Security Office in certifying the enrollment of students in their programs.

The service which most needs expansion is the effective transmission of information about the University to potential students, including not only those in Hawaii's high schools but also applicants from out-of-state. For Hawaii residents and their parents, new and imaginative techniques are needed to overcome two main barriers inhibiting attendance at the University: the feeling of inadequacy among disadvantaged groups, and the reluctance of most middle and lower-middle income families to borrow money for education. For out-of-state students forceful means are needed to communicate, both to them and to their parents, the realities of Hawaii's high cost of living and critical housing shortage.

Within the Office of Student Affairs, "follow-up" counseling is needed to work closely with the Counseling and Testing Center, Housing, Health Service and Financial Aids, in serving the students who have matriculated here under the Hawaii Upward Bound and Educational Guidance and Opportunities Programs. A counselor specially trained in working with the disadvantaged should share this training through special workshops with both faculty members and counselors throughout the University. Federal money is now available for this type of review and research; a proposal is necessary on the part of the University to take advantage of it.

There is further need to develop additional programs of special financial aid similar to the 200 Regents' Opportunity Grants (tuition waivers matched by the Educational Opportunity Grant) awarded to low income students in 1968-69. This is but one resource; all other potential sources of aid for students —federal, state and private—should be pursued.

INTERNATIONAL STUDENT OFFICE

The International Student Office performs the multiple services and functions necessary to assist the foreign student in his relationships with the University, the community and the U.S. Immigration and Naturalization Service. These functions include providing pre-arrival information and orientation; advice on housing, registration, academic and social adjustment, finances; hospitality and community service. In addition to its advisory role, this office is burdened with the increasingly heavy administrative and clerical responsibilities involved with passports, visas and extensions of stay for non-immigrants, coordination of various student scholarship programs, census-taking for the Institute of International Education, and the general circulation of information to foreign students enrolled at the University. A subordinate office function is advisory service for American students who plan to study, serve or travel abroad.

The office in recent years has assumed additional responsibilities relating to international students and visitors. To facilitate service to the international community of universities, a developmental plan has been proposed and is pending implementation. The International Student Office as newly conceived would become the Office of International Services and include four basic divisions.

1. Foreign Student Services—services to non-U.S. students at the University, as now being carried out, as well as special orientation programs as contracted for, such as the Shipboard Orientation program conducted each summer for the American President Lines.
2. American Student Services—counseling on overseas opportunities for American students, and related programming to promote interest in such opportunities.
3. Foreign Faculty Services—immigration facilities, pre-arrival information, assistance on arrival and continued service to foreign faculty and their families.
4. Foreign Visitor Services—programming of international visitors to the University, including arrival arrangements, reservations, professional appointments and hospitality, utilizing volunteers as well as staff.

The broadened plan of services would complement but not duplicate functions of the University's Office of International Programs and provide the necessary framework for increasing University responsibilities in the area of international educational exchange.

UNIVERSITY PLACEMENT AND CAREER PLANNING OFFICE

The Office assists students and alumni of the University who seek information and avenues for pursuing their careers. As a major contributor to the qualifications of its graduates, the University invests time, energy and resources in its graduates and therefore has an active concern that career decisions rest on a critical self-analysis of abilities, interests and opportunities. The Placement Office helps students and alumni to make vocational decisions based on sound knowledge, thereby avoiding haphazard, unplanned post-graduate affiliations.

Earlier in this Plan (Chapter 3, "The Critical Problem") reference was made to the dynamic nature of the employment market and the growing importance of formal education in filling professional positions. One of the educational functions of the University is to interpret "society's occupational needs" to its students and alumni. The Office of Placement and Career Planning plays a primary role in this activity.

This office engages in the following activities to assist students and alumni:

1. Helps students to analyze their own capabilities, needs and limitations, and to relate these to vocational opportunities, including postgraduate studies.
2. Assists students in developing job-seeking techniques and methods of evaluating job opportunities.
3. Interprets for students the employment needs of business, industrial, government and educational employers.
4. Maintains a library of publications concerning employers, postgraduate studies and civil service announcements.
5. Provides students with an opportunity to meet employers and negotiate for employment.
6. Acts as a depository and forwarding agent for students' confidential academic credentials.
7. Encourages employers to make known their employment requirements and programs for University graduates, simultaneously interpreting University programs and student capabilities to the public.
8. Analyzes the career experiences of University graduates, trends of employment in the Hawaiian community, salaries and other matters related to career choice.

It is anticipated that increased enrollment, additional programs and the improving prestige of the University will result in growing demands for placement services on the part of students, alumni and the community.

STUDENT ACTIVITIES BUREAU

Student social and co-curricular activities at the University are encouraged as a complementary part of the educational program. The special contribution of such activities is to help make it possible for students and student groups to define and realize their chosen aims in creating a campus environment, a kind of model university community, representing the type of life which would be most truly rewarding under the emergent conditions of modern American society.

The affluence of a consumer-oriented society permits some relaxation and diversion from primarily competitive drives. There is sufficient time for both refreshment and reflection, for the expression of ethical, artistic and intellectual concerns, even in the setting of a spontaneous bull-session between classes along a shady mall. There is an invigorating atmosphere of life in a university community based on mutual respect for freedom and for the principle that men may disagree, even engage in sharp conflict, without destroying one another's integrity.

The Bureau of Student Activities has been established to assist students and student groups to coordinate their efforts in organizing and presenting programs representing a wide diversity of student interests. Some of these programs may be designed to involve the total potential community, composed of students, faculty, campus staff, alumni, relatives and friends. Most programs have more specialized and focused goals and participants. In any event, it is the policy of the Bureau of Student Activities to encourage students themselves to take the lead in charting their own personal and group development through a broad range of student-conceived and student-organized activities.

The Bureau maintains a staff of specialists to assist students in furthering their varied aims. It is a fundamental policy of the staff, in defining its own priorities and budgeting its resources, to give special attention to programs that foster in the student a sense of personal identity with the University as both a goal-directed organization and a viable and rewarding human community. The increasing size of both student body and faculty, together with the growing specialization of curricula, make such identification difficult for the unaided individual to achieve. Student Activities therefore recognizes an urgent need for programs which give opportunity for expression to the individual students involved, whether as organizers, active participants or interested observers.

A further important aspect of student concern is already prominent on the national academic scene. This is the sponsorship, through various campus organizations and the student-activities structure, of experimental curricula, community action programs, and projects for validating and testing out different approaches to learning. When such programs are initiated by students, the entire institution is in a position to observe and evaluate those experiences without specifically committing its personnel or facilities. If the experiment after general appraisal proves worth while, the programs can logically be moved into the regular curricular channels.

Nothing has been said thus far of the possible benefits of major changes and improvements in the physical character of the Manoa Campus. A new Union Building will soon be constructed which will serve as headquarters for most student groups on campus and also as a center for all co-curricular activities, not only for students but also for faculty, staff, alumni and other friends as well. The building is being designed so that it can serve effectively as a meeting place and "commons" for all members of the extended University community.

Through its various boards, committees and staff, the Union will present cultural, social and recreational programs, aiming to make free-time activity complement and reflect the education of the classroom. Programs will be developed so as to encourage student incentives and self-direction. The Bureau of Student Activities will work with the all-campus Union to provide a service center, a place for mental and physical refreshment, a common meeting-ground, a practical training medium, and an open opinion forum for the campus. It is hoped that these functions may counteract attitudes that make for indifference and alienation between students, faculty, administration and alumni, and create instead a sense of what an academic community in the full sense of the word can mean.

STUDENT HEALTH SERVICE

To achieve an effective life and a sense of fulfillment—one of the ultimate goals of education—an individual must function well within his environment. It is not strange that a common cause of school failure is disturbances in emotional and physical health. The physically upset or handicapped student faces special problems in maintaining working relations with his world. Students under emotional stress frequently reveal physical symptoms signalling internal maladjustment, as the psychological and somatic aspects of health react upon one another.

The traditional functions of the Student Health Service relate directly to the medical needs of students, seeing that these immediate needs are met. As it operates today, the Service provides only a minimal office—call type of practice and overnight infirmary care for a few cases. This standard of service is no longer appropriate to meet the medical needs of the present student body or the enrollments anticipated in the next several years.

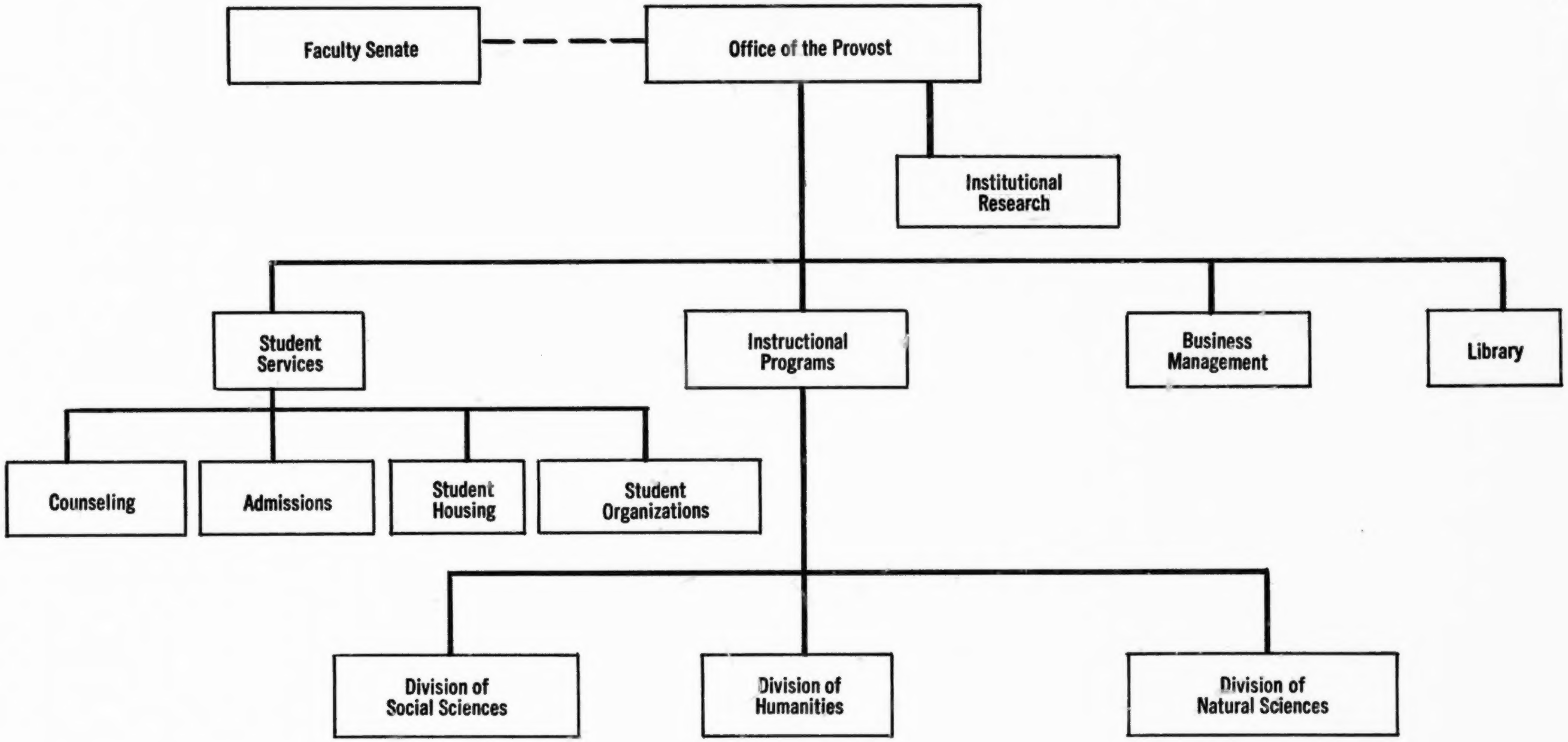
The broader responsibilities of a health service in a university setting require programs that take account of the full environmental context of student life, in addition to the more immediate factors involved in clinical treatment. Viewed in this wider perspective, an adequate health care service should include continuing programs in health education, conducted along with the direct contacts with patients. Systematic activities in preventive medicine need to be introduced and developed, together with ongoing studies of the total health environment.

Long-range planning and specific innovations are required for both services and facilities. To suggest one of the directions such planning might take in preventive medicine, it is enough to mention current problems concerning the dissemination of sound and up-to-date knowledge on smoking, drug abuse, sexuality and alcoholism. Current educational practices in this area are still severely inadequate. Increased enrollment and the growing complexity of the University will also intensify the need for effective services in the form of counseling therapy and psychiatry. The influx of married students, many with dependent children, and the mounting numbers of older graduate students require appropriate but usually more routine types of health care for these special classes of individuals. There is little doubt that a full-fledged university health program, planned to serve a highly diverse academic community of well over 30,000 persons, would in time repay the state for this type of investment in basic human resources.

The Student Health Service is at present conducting a re-examination of its functions and goals, so as to bring them in line with progressive thinking in the fields of both medicine and education. The prospective development of the Medical School, especially if its clinical facilities should be expanded, will of course play a decisive role in the ultimate planning and programming of an enlarged service.

To identify health needs systematically and to assure that they are adequately met does not mean that the University should by itself provide all the required services. Fortunately, the Manoa Campus is located in an urban area possessing many private and public health facilities. However, the fact remains that many students are medically indigent and that most are involved in the problems of adapting to an independent style of life, while still finding themselves financially dependent on their parents. Productive innovation in health services requires analysis of student needs as these arise in response to the environment of the campus.

HILO CAMPUS


Faculty Senate
Office of the Provost
Institutional Research
Student Services
Instructional Programs
Business Management
Library
Counseling
Admissions
Student Housing
Student Organizations
Division of Social Sciences
Division of Humanities
Division of Natural Sciences

Chapter 24: HILO CAMPUS

Development; Changing Functions

The role of the Hilo branch of the University of Hawaii has varied greatly during the several stages of its development. At its inception in 1947, using makeshift facilities, it offered courses through the extension division of the College of General Studies. This arrangement was part of the new policy of decentralization adopted by the University in response to the upsurge of enrollment.

During this initial stage from 1947 to 1954, the Hilo branch grew from 47 students to 132. It struggled along with limited support and recognition, and the courses it offered were determined entirely by student needs. Until 1954 there were only three full-time faculty members.

In 1955, with enrollment at 155, the Hilo branch moved into a second stage of development. A new site of some 50 acres was assigned, and the first buildings designed specifically for its use were erected. Its function, now more clearly defined, was to offer a two-year program with a concentration in the arts and sciences, but with introductory courses in education, business administration and engineering.

Despite its growth to 679 students in September, 1968, the Hilo Campus has remained at this stage of academic development. Its courses parallel those offered at the Manoa Campus in order to facilitate the transfer of students at the completion of their second year, although encouragemnt was given in Academic Development Plan I to make departures. In accord with the recommendation of the 1967 Supplement to the Academic Development Plan, "The Hilo Academic Development Plan," the Hilo Campus began in 1968 to handle its own admissions, hitherto administered at the Manoa Campus.

The Hilo Campus is ready to move into a third stage: to become a four-year college, offering programs in the liberal arts and some pre-professional courses. Estimates as to the minimum enrollment needed to make a four-year college economically feasible range from 800 to 1,000.* If a third year is introduced in 1969-70 and a fourth year in 1970-71, the total enrollment at the Hilo Campus will then be over 1,000. Noting the growth in enrollment and the increase of qualified faculty and staff, a national consulting firm employed by the University under a legislative authorization to study the needs of higher education in the islands recommended in 1967 that the Hilo Campus be given "the ultimate mission of developing into a four-year college with emphasis on the liberal arts."

Improvement in the quality of the faculty over the past several years is notable. In 1968-69 more than 42 per cent of the faculty had doctorate degrees and another 20 per cent had largely completed their doctoral requirements. Of the total student credit hours at the Hilo Campus in 1968-69, over 37 per cent were offered by instructors holding the doctorate. In large universities, the corresponding percentage for lower division courses is frequently less than 15 per cent.

Library resources at the Hilo Campus have been improved substantially. Since 1961, more than 10 per cent of the total budget has been spent to add about 6,500 books a year. Books unsuited for academic use have been culled from the collection, and during the past two years the holdings have been checked against recommended lists for college libraries to guide ordering policies. At present the library has some 42,000 books and 587 serials, of which 527 are periodicals. However, further expansion is needed to reach the levels suggested by the American Library Association, which regards 50,000 volumes as necessary for a college of 500 students.

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*Lewis B. Mayhew, *The Smaller Liberal Arts College*, The Center for Applied Research in Education, N.Y., 1965, p. 99.

HILO CAMPUS

Divisions: Humanities; Natural Sciences, including introductory courses in agriculture and engineering; Social Sciences, including introductory education courses.

	Actual		Projected	
	1963-64	1968-69	1972-73*	1975-76*
Students Enrolled (Fall)	366	679	1,210	1,520
Student Credit Hours	5,442	9,447	16,713	21,000
Faculty and Staff (FTE)	27	58	82	103

* Projected enrollment figures based on assumption that junior year is begun in 1969-70 and senior year in 1970-71, that 50 per cent of sophomores will take junior year in Hilo, and 80 per cent of juniors will remain for senior year.

Technical Program

The Hilo Campus is also ready to begin a phased movement toward combination with the Hawaii Technical School, now under supervision of the State Department of Education, to offer an expanded technical program and a double-track system of college courses, thus accommodating the entire range of students as well as those who would enter a community college, if one existed on Hawaii. Such a program will make it possible for students in the college-track curricula to attain an Associate of Arts degree upon completion of a two-year program.

Serving the State and the Local Community

As a four-year college, the Hilo Campus will offer degree programs in the liberal arts, including curricula which will also qualify students for teaching certificates from the State of Hawaii after a fifth year at a professional college of education. Lower-division courses in engineering, agriculture and business will continue to be given at the present level. In the first phase of this development, Hilo Campus will limit its program to majors in the language arts (English and speech), the social sciences (a distributive major) and biology. As enrollment increases, additional programs will be added. By 1975-76, when the enrollment should exceed 1,500, the range of curriculum choices will be considerable. The selection of baccalaureate programs will be determined on two principles: first, fields in which physical, climatic, demographic and geographical features of the island of Hawaii offer special advantages for study; secondly, the pattern of choices made by the students, which may generally be expected to resemble those of Manoa students.

As a four-year institution, the role of the Hilo Campus will be to serve the requirements of local students and of those from other parts of the state, along with other community needs. In the foreseeable future, the Hilo Campus will not be able to meet all the varied demands of local students in higher education, but the program just outlined will serve the needs of the greatest number. A study of 1961-62 Hilo Campus students has shown that approximately one-half have entered the teaching profession. The initial upper-division program, therefore, will offer academic courses required by future teachers, plus a limited number of courses in pedagogy.

With a stronger and more varied baccalaureate program, the Hilo Campus should attract numerous students from other parts of the state. Many students develop best in the environment of a smaller college. Student unrest on mainland campuses has indicated an increasing resentment against the impersonality of the large university. In Hawaii, no other alternative to the large university is now available within the public system. A four-year degree program in Hilo will give a real additional choice to students.

Finally, the Hilo Campus will make a definite contribution to the community. A four-year college will provide an intellectual leaven for the island of Hawaii, now on the verge of enormous growth as a tourist center. Without a four-year college to provide educational opportunities to the students of lower-income families, the future of many young people of the island would be limited largely to providing food and beverage service, housekeeping and transportation for the tourists. The presence on the island of a full-fledged college will lift the cultural level by providing a center for the performing arts and by raising educational standards of the schools through professional assistance and through continuing education programs adapted to the teachers. Even in areas in which it will offer no specialization, such as urban development, public health, etc., the campus will serve the community by helping to identify problems and facilitating referral to the appropriate agencies.

Curriculum

Although a smaller college cannot offer the variety of educational experiences available at a large university, it has unique opportunities for distinction. The Hilo Campus will endeavor to make the most of these opportunities in its curriculum and mode of instruction. The major objective of the Hilo Campus will be to fashion its curriculum and instruction to encourage its students to become intellectually mature human beings, with the background and the ability to make sound judgments. Besides acquiring competence in some one field, all students will be expected to grasp the relationship of their specialization to the broader spectrum of knowledge and human concerns. As an essential aid toward grasping this relatedness and of developing their judgment, students will take an interdisciplinary course in each of their years at the campus. These courses will examine attempts of man to interpret his purposes and to organize his experiences; attention will concentrate on the analytic and historical study of works and institutions. The courses will combine lectures, seminars and individual study. In the freshman year, the material of the interdisciplinary course will be used to provide subject matter for composition and speech courses taken concurrently. In later years, these courses will deal with ecology, the comparative study of Asian and Western traditions and institutions, and major problems in personal and social ethics.

Through its program the Hilo Campus will attempt to use its faculty resourcefully. When skills can be better acquired by auto-tutorials and programmed learning, these methods will be employed. To avoid the costly waste of faculty time repeating lectures to sections too large for discussion, lectures will be presented over closed-circuit television. Closed-circuit television will also be used where an instructor is doing detailed demonstrations in a regular classroom. This will free faculty for additional seminars and tutorials.

Even as the college grows and the faculty increases, there will be certain areas within the liberal arts in which there will not be regular instructors with the particular competence needed. In such instances invitations to offer courses in their fields of specialization will be extended to some of the highly skilled resource people on the island. Members of the staff of Cloud Physics and the Agricultural Experiment Station are presently making valuable contributions to the Hilo Campus, and, as the need arises, members of the Peace Corps faculty and the Keaukaha Language Program, as well as scientists from the Volcano and the Mauna Kea observatories, will also be invited to participate. As another means of enriching the Hilo program, use will be made of the telelecture, pioneered at Stephens College and at the University of Omaha. It offers students an opportunity to listen to lectures and engage in discussion with scholars, statesmen and other resource people regardless of distance. The lecture itself can be delivered by tape, and an opportunity for questions and discussion can be provided by a simple adaptation of a telephone receiver. A microphone replaces the mouthpiece, and a loudspeaker amplifies the message being received. The University of Vermont offers 20 off-campus courses by telelecture throughout the state. Similar arrangements will be made with the Manoa Campus.

The Hilo Campus will also offer remedial courses in the summer to students who are handicapped by deficiencies in verbal and mathematical skills. Furthermore, in administering its own admission standards, it will take into account the special qualifications and needs of capable students who might not be judged acceptable under tests that assume greater verbal skills and general sophistication than those of some island students.

The Quality of the Students

During the initial phase of the development of the Hilo Campus into a four-year college, about nine-tenths of the students will come from the island of Hawaii. At present, 89 per cent are from the Big Island and about 7 per cent are mainland students or East-West Center grantees from Asia and the Pacific. Some 4 per cent are from other parts of the state.

As soon as a four-year program is introduced, the percentage of out-of-state students is expected to rise significantly. If the local students are to have the opportunity to broaden their experience, it will be essential to have a substantial component of students from out-of-state. The contribution presently being made by foreign and mainland students in enlivening the campus and enlarging the range of interests is already significant. A corresponding growth in the percentage of students from other parts of the state is also expected. As the small four-year college campus in the University system, it will attract students seeking an education of this type, probably in small numbers at first but sure to achieve greater size and significance in a few years.

Scores from Educational Testing Service examinations taken in 1965 and 1966 indicate that Hilo students tend to equal or slightly exceed national norms in mathematical skills but fall behind in verbal skills. This pattern suggests the average ability of Hilo Campus students overall is satisfactory but that the language preparation of many students is poor—presumably in large part the result of early background and relative isolation. Approximately 94 per cent of the grandfathers and 23 per cent of the fathers of Hilo Campus students immigrated from non-English speaking countries. About a third of the students' parents have not gone beyond the eighth grade, the mean of parental schooling being about 11 years. Median family income is about $7,200, with 46 per cent having an income of less than $6,000 (1967). These statistics indicate that the majority of the students come from relatively poor surroundings where the level of English is substandard, and reading materials limited. Even improved high school standards will not completely remove these disabilities.

However, Hilo Campus students have shown a persistence in completing their college programs that indicates they have patience and industry. A study of freshmen entering in 1960 and 1961 shows that 59 per cent completed four years of college and 62 per cent of these have become teachers.

If the Hilo Campus program is to be effective with local students, it must overcome their deficiencies in reading and verbal skills, and their relative cultural and geographical isolation. Moreover, it must demonstrate the value of a liberal arts education to parents whose limited academic background and general outlook cause them to place excessive premium on educational programs that provide immediate job opportunities.

Extensive use will be made, therefore, of language laboratories to allow students deficient in communications skills to improve their performance levels. Mainland students, whose skill in articulation will raise the standard of spoken English in the classroom and on the campus, will be solicited. Seminars will be stressed to permit reticent local students to achieve greater self-confidence before their peers. Individual study will provide students with the novel experience that learning can be exciting.

Finally, Hilo Campus will make special efforts to interpret its objectives to the community, and especially to the parents of its students, stressing an understanding of the different educational tracks and support of a liberal education, both for its own sake and as the best preparation for a career in the professions, in business or in government.

Providing for Interchange

The geographical isolation of the Hilo Campus poses the greatest problems for its development. The

PROJECTED RATE OF FACULTY AND STUDENT GROWTH OF HILO CAMPUS

Academic Year:	1968-69	1969-70*	1970-71†	1971-72	1972-73	1973-74	1974-75	1975-76
Total Enrollment	679	885	1030	1120	1210	1300	1400	1520
FTE	658	831	968	1052	1137	1222	1316	1429
Faculty‡ Staff	45	58	74	81	87	94	100	109

*Assumes introduction of third-year curriculum.
†Fourth year added.
‡Actual staffing for 1968-69; budgeted staffing for 1969-70; staffing by formula shown above in text for subsequent years.

effects are felt by both students and faculty. Students have a limited range of experience, and faculty are often cut off from the stimulation of colleagues working in their own discipline.

To relieve the cultural isolation of the students, it is not only essential that students be solicited from outside the state, but that local students also be encouraged to spend at least some time in another academic institution. Students entering the teaching profession will necessarily spend a fifth year on the Manoa Campus. At the present time, about a dozen students attend a summer program at Lund University in Sweden, administered by the Hilo Campus, and their number will probably increase. Exchange programs and financial assistance for a year abroad should be made available especially for language students.

Equally important is an exchange program for Hilo Campus faculty. A limited amount of interchange is already in effect between the Hilo and Manoa campuses, but it must be expanded if the Hilo Campus is to attract more good faculty members. The number of its staff engaged in research which requires the facilities of a major campus is increasing; two have been awarded national grants. To insure such an increase, money will be budgeted for brief visits to the Manoa Campus to use library facilities and to consult colleagues. The inter-library exchange will have to be made more efficient and more rapid. At a relatively modest price, unlimited telephone service could be maintained between the two campuses. This could also be used for the telelectures mentioned earlier, and for faculty to secure research materials.

RESOURCES NEED

Faculty and Staff

Carrying out these projected aims for the Hilo Campus will require considerable increases in faculty and staff. To provide quality instruction, it will be necessary to maintain a student-faculty ratio of 15:1 and about one full-time staff member (administration, library, student services, etc.) for every 100 students (FTE). The following table projects this expansion—but showing for 1968-69 actual faculty-administration staffing, for 1969-70 budgeted staffing, and applying for subsequent years the above ratios.

Library

Hilo's present collection of 42,000 volumes represents notable progress, but the library holdings will have to be increased greatly to meet the standards set by the American Library Association. Since the Hilo Campus library is the only academic library available to students and the community alike, at least 10 per cent of the total campus budget should continue to be spent on its improvement. By ALA standards, a college of 500 students should have about 50,000 carefully chosen volumes; with each additional 200 students, there should be an additional 10,000 volumes. Thus, the projected enrollment of 1,000 (FTE) two years hence will require a collection of about 75,000 books—an aggregation which is probably too large to build up in that short time, but which can be approached by an accelerated rate of purchasing.

Residence Halls

As at Manoa, dormitory facilities at the Hilo Campus are inadequate to serve an expanding student population. Now there is only one residence hall, with 53 rooms; a second dormitory of approximately the same size is under construction. If Hilo is to serve the entire Big Island, let alone the rest of the state and attract the necessary leaven of students from outside the state, additional residence halls must be provided.

A Staged Development for Hilo Campus

Stage I. Expansion into a limited third-year program and combination with the Hawaii Technical School: 1968-70.

A third-year program will be introduced in 1969-70, offering majors in the fields of the language arts (English and speech), biology, and the social sciences (a distributive major). Combination with the Hawaii Technical School can be accomplished in the academic year 1969-70.

Stage II. Expansion into a limited four-year program: 1970-71.

The fourth-year will be limited to the fields described above. To minimize the number of new courses offered, and therefore the number of instructors needed, upper-division courses will be offered in a two-year cycle.

Stage III. Development of the full program: 1972-75.

Additional courses will be added to the baccalaureate program so that by 1975-76, with a projected enrollment of 1,500 students in the college-track curricula, degree programs of good quality can be offered in a range of liberal arts and sciences. Priority will be given to subjects in which student interest appears greatest and to subjects for which the resources of the island of Hawaii can provide special advantages for study.

Chapter 25: COMMUNITY COLLEGE SYSTEM

Purposes and Objectives

The University of Hawaii Community College System was established by the legislature of Hawaii in 1964, as an integral part of the University of Hawaii system of higher education, responsible to the University through the Vice-President of Community Colleges. The nucleus of the system consists of four of the five state technical schools transferred to the Community College System by executive order of the Governor on July 1, 1965—Maui Technical School, Kapiolani Technical School and Honolulu Technical School on Oahu, and Kauai Technical School. Hawaii Technical School in Hilo was not transferred and remains under the jurisdiction of the State Department of Education. In September, 1968, a new campus was opened—Leeward Community College on Oahu.

The community college system is a reflection of the revolutionary changes in American society. Chapter 3, "The Critical Problem," has emphasized the fact that the technical revolution has displaced the unskilled worker and has rendered outmoded many existing skills. Coupled with this fact is an increased number of leisure hours resulting from a shortened work week. Community colleges, in order to meet these changes, must broaden the base of higher education, so that most of the population can improve their technical and personal effectiveness. Implicit in the community college system, therefore, is the need to provide technical and academic training for all levels of the population.

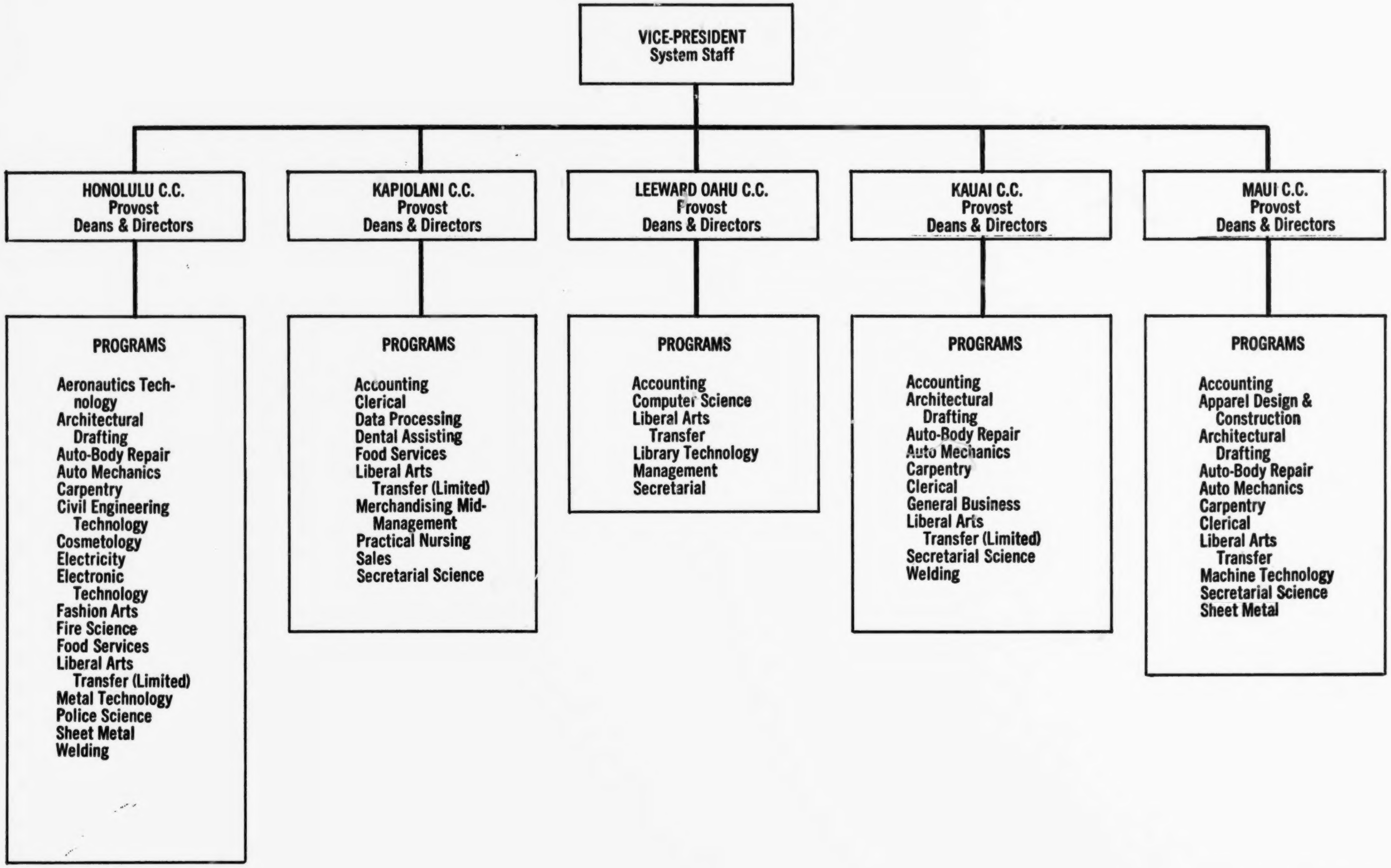
In line with their role, the community colleges undertake multiple responsibilities:

1. Developing technical programs of varying lengths, some leading to associate degrees or certifiicates; others, short-term programs of several weeks or months. These programs will be constantly changed and updated to insure that they provide the type of training necessary to hold a job. They will also be designed to retrain workers in fields where occupational requirements have changed.

2. Providing continuing education for updating and improving job competence, for cultural broadening and personal and citizenship effectiveness. The colleges, therefore, will serve as cultural centers for their communities.

3. Establishing a program of general education, including means for transfer to baccalaureate curricula. The college programs in liberal arts designed for transfer to Manoa Campus or Hilo Campus will be similar to the lower division requirements of the University. However, it is anticipated that many students will transfer to other institutions of higher education. In ac-

COMMUNITY COLLEGE SYSTEM


VICE-PRESIDENT
System Staff
HONOLULU C.C.
Provost
Deans & Directors
PROGRAMS
Aeronautics Technology
Architectural Drafting
Auto-Body Repair
Auto Mechanics
Carpentry
Civil Engineering Technology
Cosmetology
Electricity
Electronic Technology
Fashion Arts
Fire Science
Food Services
Liberal Arts Transfer (Limited)
Metal Technology
Police Science
Sheet Metal
Welding
KAPIOLANI C.C.
Provost
Deans & Directors
PROGRAMS
Accounting
Clerical
Data Processing
Dental Assisting
Food Services
Liberal Arts Transfer (Limited)
Merchandising Mid-Management
Practical Nursing
Sales
Secretarial Science
LEEWARD OAHU C.C.
Provost
Deans & Directors
PROGRAMS
Accounting
Computer Science
Liberal Arts Transfer
Library Technology
Management
Secretarial
KAUAI C.C.
Provost
Deans & Directors
PROGRAMS
Accounting
Architectural Drafting
Auto-Body Repair
Auto Mechanics
Carpentry
Clerical
General Business
Liberal Arts Transfer (Limited)
Secretarial Science
Welding
MAUI C.C.
Provost
Deans & Directors
PROGRAMS
Accounting
Apparel Design & Construction
Architectural Drafting
Auto-Body Repair
Auto Mechanics
Carpentry
Clerical
Liberal Arts Transfer
Machine Technology
Secretarial Science
Sheet Metal

COMMUNITY COLLEGE SYSTEM

	Actual		Projected	
	1963-64	1968-69*	1972-73	1975-76
Enrollment:				
Day†	1,499	5,050	10,044	16,366
Evening†‡	—	599	816	1,139
Apprentice@	1,280	2,198	2,375	2,635
Manpower Development and Training Program**	217	1,400	1,500	1,800
Graduates:				
Associate in Arts	—	5	901	1,495
Associate in Science	—	322	862	1,378
Cert. of Achievement	703	387	558	908
Faculty and Staff (FTE):				
Faculty	86	280	464	598
Civil Service	15	80	96	112

*Data on graduates for 1967-68.
†Enrollment figures as of September 30.
‡Non-credit enrollment not included.
@Includes apprentice and upgrading enrollments; non-duplicated headcount of students participating in these programs during year.
**Cumulative enrollment for the year.

cord with the students' educational plans, courses in the technical and commercial areas may also be transferred to those institutions with appropriate curricula.

The Colleges

Each college within the system will have a wide degree of autonomy in developing its programs. Each will work up its own educational development plan. Each will be individually accredited. As the term "community" implies, each college will be responsive to the educational needs of its own particular area. Therefore, Maui and Kauai serving essentially rural areas, Leeward serving a suburban type of community, and Honolulu and Kapiolani, located within the metropolis, will develop differently. The historical development of Kapiolani as a business college and Honolulu as a technical college—each with its own specialized equipment and particularly trained faculty—will result in continued emphasis in these areas at the two colleges.

Articulation with the Manoa and Hilo Campuses

A major concern of the Manoa and Hilo campuses is the college transfer program of the community colleges. It is expected that a majority of the students who successfully complete a transfer program will attempt to enroll as juniors at Manoa or Hilo. But others—and this number could be sizeable—will transfer to other four-year colleges in the state or on the mainland.

Inasmuch as the community colleges follow a more liberal admissions policy than the Manoa Campus, their faculties meet a special challenge. The resources they need for this difficult task are not only subject matter competence but also effective teaching methods and techniques. The fact that most of the campuses will have far smaller enrollments than the Manoa Campus should permit their faculties to work closely with their students.

Careful curriculum design is also essential for the colleges, since their relatively small teaching staffs do not permit them to offer a wide range of courses in each major branch of learning. Here again the responsibility rests with each college to devise and offer the courses most appropriate to its student body, faculty and setting. Common sense as well as educational policy has led the colleges to concentrate on helping their students to complete most or all of the general education requirements of the University—communications, mathematics, world history, and basic courses in the sciences, social sciences and humanities.

The policy of the University is that none of these courses need be identical with those offered at Manoa, as long as the same broad educational objectives and standards of performance are attained. Students in good standing may transfer from a community college to Manoa or Hilo and will be given no special examinations to ascertain their qualification for further study. Such qualification is taken for granted, if they have received the necessary grade point average from the community college. However, as a check on the quality of the work of these students, the community colleges will collaborate with the central administration of the University in following the academic records of community college alumni after they transfer to a University campus for advanced courses. If consistent weaknesses should show up in one or more academic areas, the community college will undertake to raise its standards of grading, improve its faculty, or both. Where community college transfers perform especially well, this may be investigated with profit by the Manoa Campus.

It is expected that some students who have started their collegiate careers on the Manoa Campus may transfer to community colleges for reasons of change in their educational goals, academic dismissal or probation, or convenience. The community colleges should make provisions not only to accommodate but to counsel these students.

Procedures whereby students on one campus on Oahu can take at another campus courses not otherwise available to them are being worked out. Already, Manoa students needing technical courses in the use of business machines go to the nearby Kapiolani Community College, as do some students in the Travel Industry Management Program. It is planned to have education students specializing in industrial arts trained in the shops of Honolulu Community College, which are far superior to those on the Manoa Campus. Conversely, community college students who need courses available only at Manoa, and who are qualified to take them, will be able to do so.

Articulation of the several campuses of the University system will require continuous consultation, not merely by deans and provosts, but also by faculty members teaching similar courses. It is not necessary for any campus to get the consent of any other campus before making a change in curriculum or course, but each campus should avoid surprising the others. A faculty member in charge of a program of mutual interest to all campuses (freshman English, pre-calculus mathematics, introductory chemistry, etc.) should inform his counterparts on the other faculties before making a course change of major significance.

Much of this consultation can be made by phone or casual visit. However, there should be a least one meeting each year of the persons directing the basic general education or introductory courses which are at least approximately common to all campuses. The meetings should rotate among the several campuses, so as to increase familiarity throughout the entire University system.

Coordination is also necessary in another academic area, among the officers who deal with admissions and enforcement of standards. The Manoa Campus has a committee of associate and assistant deans which meets frequently to insure that the students in the several colleges of Manoa receive equal treatment with respect to grade point requirements and the like. Representatives from the community colleges and from the Hilo Campus, as well as students, will be added to the committee, so that questions or transfer from one campus to another can be handled as they arise, and so that policy questions can be formulated in light of the entire range of University curricula.

By such means a sense of joint enterprise can be developed to enable the University of Hawaii, uniquely among American state universities, to conduct an integrated system of higher education which is both flexible to the needs of students and of an excellent quality throughout.

Projected Developments Under Academic Development II

1. Complete the Leeward College and the addition of technical programs; relocate the Kauai College; expand the Honolulu College; consider establishment of additional campuses; complete the Maui College Master Plan.
2. Develop comprehensive programs in all of the colleges involving two years of transfer work for the Manoa and Hilo campuses, expedite appropriate transfer work for other institutions of higher education, and broaden offerings in the occupational areas.
3. Develop programmed learning, using the most modern techniques and other methods to maximize self-learning.
4. Continue study of occupational programs to insure necessary technical training, abandoning technical programs which no longer meet the needs of the work world and adding new ones as needs develop.
5. Establish short-term courses for occupational training and upgrading.
6. Develop continuing education programs through increase of evening offerings or by following the concept of the extended day.
7. Provide community–oriented educational services.
8. Establish research projects aimed at instruction evaluation and improvement.

Chapter 26: UNIVERSITY OF HAWAII PRESS

Purposes and Objectives

The University of Hawaii Press was established in 1947 to serve as the publishing arm of the University. Its governing concept, like that of other university presses, has been to publish significant works of scholarship that commercial firms cannot afford to undertake. The University of Hawaii Press is a member of the 68-member American Association of University Presses, whose commitment, according to its by-laws, it is "to encourage the dissemination of the fruits of research and scholarship, and in connection therewith, the development of university presses and the flow of scholarly information both within and without the United States."

The growth of the Press since its establishment has been steady and gradual, with a marked expansion of its catalog listing during the past several years. Since the first book in 1948, the Press has published 83 new titles of which 67 are in print. At present the Press publishes about 16 titles a year, an ouptut that compares favorably with that of other distinguished but small university presses, such as those of Wesleyan University, Ohio University, Duke, Brown, and McGill.

Since its inception, the University of Hawaii Press has concentrated on publication of scholarly books related to the Pacific region, works which add to the sum of knowledge, particularly those which result from the University's extensive research programs and reflect its regional responsibilities. Present listings include original scholarship in such diverse fields as entomology, Pacific lexicography, race relations, land laws, anthropological linguistics, marine biology, history of the Hawaiian Kingdom, fine arts of China and Japan, Far Eastern philosophy and literature, Okinawan religion, Pacific cookery, Hawaiian folklore and legends, Pacific biography. The publishing activities of the Press also include the editing, production, and subscription and reprint fulfillment for two quarterly journals (*Pacific Science* and *Philosophy East and West*) and one semiannual (*Oceanic Linguistics*).

The geographical focus of the University of Hawaii Press is specific, yet broad and flexible. Publishing policies have reflected, from its beginnings, a principle recently stated by Marsh Jeanneret, director of the University of Toronto Press: "If the standards of scholarship are international, the interests of scholarship are often regional."*

In their role as disseminators of scholarship, university presses also provide publishing services to other educational institutions or societies which have no facilities of their own. The University of Hawaii Press has cooperatively published titles for the Friends of the Library of Hawaii, the Honolulu Academy of Arts, and the Hawaiian Historical Society.

Present Status

The rising costs of book production and distribution, together with the increased competitiveness among commercial publishers, have meant that the latter are even less willing than before to publish certain kinds of scholarly books. At the same time, the quantity and scope of research activities in institutions of higher learning are expanding at a tremendous tempo. This development, combined with increasing student enrollment and the growing number of teaching and research personnel, generates greater demands for the publication of scholarly books. The University of Hawaii is experiencing this expansion, and the demand for publishing by its Press is increasing proportionately.

Most published works of scholarship are intended for audiences of between 1,500 and 10,000 readers. The University of Hawaii Press publishes in editions of 1,500 to 5,000 copies. Although the state provides the major portion of the subsidy for the University of Hawaii Press, a significant share is contributed by the federal government and private foundations. In particular, the state provides overhead and the salaries of the regular full-time staff, and the printing funds for approximately half of the books produced. The second half of the printing funds comes from other sources, and several part-time positions are also financed from these sources.

In 1967, the staff was increased from six to ten full-time positions, and operation was reorganized into six departments, including: administration, concerned with direction, supervision, long-range development, policies, budgeting, and staff, etc.; editing; design and production; journals; sales and promotion; business operations, concerned with projections and analyses relating to costs, sales, commissions, subsidy requests, contracts, etc.

Program Development

The supply of publishable manuscripts will continue to mount rapidly as both the scholarly quality and numbers of faculty increase. The establishment and growth at the University of research institutes, the exploitation of new areas of interdisciplinary studies, and the increasing importance in world affairs of the peoples of the Pacific will contribute to the rising curve in the publication potential of a Honolulu-based university press. For this reason the staff and the funding of printing costs should be increased at regular intervals so that the Press will be able to meet the

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**To Advance Knowledge: A Handbook on American University Press Publishing*, ed. Gene R. Hawes, New York: American University Press Services, 1967, p. 24.

greater needs caused by rising demands. The economic goal of the Press, to reach a volume of publication sufficiently high so that sales will more nearly offset production costs, can only be achieved through proper staffing ratios and printing allotments, supported by revised budgeting policies and reforms in local bidding procedures.

Contracting

The Press experiences great difficulty in making use of the services of book manufacturers (as distinct from job printers), due to the formal bidding procedures required by state law. The chief restrictive practices which become serious obstacles to sound operations include: bid bonds, which are not customary in the printing industry, with the result that most out-of-state manufacturers will not submit to the requirement; penalty clauses, also discouraging to out-of-state manufacturers; a 15 per cent differential favoring local bidders, resulting in a system which is not truly competitive; pseudo-competitive bidding, which does not allow inspection of the manuscript by out-of-state manufacturers prior to submission of a bid.

In utilizing non-specialists for the manufacture of its books, the Press pays higher prices, experiences unnecessary delays, expends undue amounts of staff time and energy supervising production and overseeing corrections, and sometimes must accept faulty workmanship or the alternative of additional delays. The higher production costs result in higher retail prices for the finished books.

Revolving Fund

Since its establishment the Press has not been permitted to retain the proceeds from the sale of titles published with state general funds. The fact that it does not do so creates severe difficulties in management, long-range planning, and achieving the output of which the Press is potentially capable. Retaining returns from sales is a basic condition of good publishing operations. It has the wholehearted approval of the university press profession.

Developments Under Academic Development Plan I

1. Published 26 new titles, reprinted 13 books, issued three scholarly journals.
2. In addition to regular scholarly volumes, produced special publications for the Honolulu Academy of Arts, Friends of the Library of Hawaii, Hawaiian Historical Society, and in collaboration with the Australian National University Press.

Projected Developments Under Plan II

1. At present, 22 manuscripts in preparation; approximately 17 new manuscripts for acceptance each year for next two years; thereafter, an annual increase of about 20 new projects.
2. By 1975 projected annual publication of 26 books and 4 journals, making a potential total of about 127 new titles for publication under Plan II; of these, some 20 to be cooperatively published with historical, scientific and educational organizations.

Chapter 27: EAST-WEST CENTER

Purposes and Objectives

The East-West Center—formally known as "The Center for Cultural and Technical Interchange Between East and West"—was established in Hawaii by the U.S. Congress in 1960. The Center's goal, as stated in the enabling legislation, is to promote better understanding and relations among the people of Asia, the Pacific islands and the United States. The method suggested is the free interchange of information, ideas and beliefs in cultural and technological fields through programs of education, research and training. The Center was established in cooperation with the University of Hawaii as an institution "where scholars and students in various fields from the nations of the East and West may study, give and receive training, exchange ideas and views . . . . " From inception, it has focused on the dimension of human resources in international understanding, supplemented by the exchange of ideas through the printed word.

Relationships to the University, State of Hawaii, U.S. Government

Hawaii was selected as the site for the East-West Center for a variety of reasons, including geographical location, the harmonious mixture of races and cultures in its population, the state's Asian-Pacific outlook, and the role of the University of Hawaii in contributing to knowledge of these areas of the world.

Congress has appropriated funds annually through the U.S. Department of State for support of the Center and provided for the construction of the East-West Center complex of buildings on the University of Hawaii campus. The Board of Regents of the University is the agency of the state through which the Center receives its funds. The interdependent nature of the institution is illustrated by the fact that its administration is responsible to the Board of Regents as well as to the National Review Board, an advisory board for the State Department. Congressionally-appropriated funds are channeled to the University through the State Department's Bureau of Educational and Cultural Affairs.

The Center selects scholars, students and technical training participants from more than 30 countries and territories. In addition to Center-directed research projects, it provides intercultural opportunities through a variety of programs, including seminars and activities linked to residence halls in which grantees live at the East-West Center. Academic instruction is carried out by the University, which gives academic credits and awards degrees to those qualifying. The Center arranges in some cases for further academic instruction at universities on the U.S. mainland and in Asia. Technical and other specialized instruction and on-the-job training are also provided in cooperation with state government agencies, Asian-Pacific government agencies, private firms and the U.S. Agency for International Development (AID).

Institute for Student Interchange (ISI)

Scholarships, usually for graduate study leading to a master's degree, are offered by ISI to young men and women possessing a high degree of leadership potential and scholastic ability and giving evidence of real interest in the goals of the Center. Preference in awarding grants is given to those seeking advanced education in fields best meeting the needs of their respective countries.

A small number of students are accepted for undergraduate programs from countries and territories with limited higher educational facilities. All students must meet University of Hawaii requirements; Asian and Pacific students are required to demonstrate proficiency in the English language. All American students are required to study intensively an Asian or Pacific language, in addition to regular degree work. A ratio of two Asian or Pacific students to each American has been determined as most suitable to fulfill the Center's goals of interchange and understanding.

Scholarships are awarded initially for 17 to 20 months, with provision for extensions to a maximum of 24 months for graduate students when necessary to fulfill academic programs. American students normally are awarded field study trips to Asia or the Pacific area and Asian and Pacific students are offered study periods ranging from a summer to one semester plus a summer at U.S. mainland universities, depending on academic requirements.

East-West Center students also are required to participate in Asia-America seminars for critical and constructive comparisons of varying cultures. During any semester, between 500 and 600 students are studying on Center grants awarded through the Institute for Student Interchange.

Institute of Advanced Projects (IAP)

The Institute of Advanced Projects awards about 40 Center grants annually to promote—at the senior, professional level—research, writing, discussion and exchange of ideas on subjects of concern to East and West. In addition, IAP distributes reprints of articles published by specialists during or after their stay at the Center. Scholarly materials produced at the Institute are made available to educational, research and governmental institutions on both sides of the Pacific.

Grants to Senior Specialists, such as college professors, government administrators, artists and scientists, provide for residence periods ranging from four to ten months at the Institute. In addition to work on

EAST-WEST CENTER

	Actual		Projected	
	1963-64	1968-69	1975-76*	1972-73*
ISI Grantees (students)	580	498	680-720	740-810
IAP Senior Specialists (Researchers)	29	43	55-65	65-80
ITI Participants (Technical Students)				
Hawaii-based	273	718†	770-800	810-870
In field training	188	1,335†	1,400-1,500	1,500-1,600
No. of Staff (Professional and Clerical)	118	124	124-128	130-140
No. of Volumes in EWC Library	118,749	270,817†	424,000-426,000	516,000-518,000
No. of Volumes Published by EWC Press	8	78†	123-129	150-173
No. of Occasional Papers. Research Translations and Publications Issued	3	105†	300-310	360-370

*Increases will depend upon findings of program feasibility studies and their impact on appropriations. Lower figure assumes the addition of one new program every other year; higher figure, one new program each year.

†1967-68 figures.

individual projects, Senior Specialists participate in Center research programs and informal seminars. A few also teach at the University of Hawaii.

The Research Publications and Translations Program not only translates scholarly material from and into Asian languages but also compiles and distributes teaching and research aids, such as bilingual dictionaries and annotated bibliographies. These are published as occasional papers and distributed to educational, research and governmental institutions on both sides of the Pacific.

Institute for Technical Interchange (ITI)

Training projects are organized and administered for technical participants from Asia, the Pacific area, and the United States. Training is designed to further understanding among peoples at the same time technical knowledge is exchanged. Projects may last from three to 12 months. They are designed to fill the needs of developing areas and are roughly grouped into three major program areas: health and medical technology; women's career development; and economic and cultural resources. About 350 grants are awarded annually for training in Hawaii, but more than 1,000 persons are trained at workshop-seminar instructional programs held at various places in the Pacific and Asia.

The Institute also administers training and job observation programs in Hawaii for AID participants and participants from other private and governmental agencies.

East-West Center Library

The East-West Center Library collects scholarly materials from and about Asia and provides research resources for students and scholars at the Center, the University of Hawaii, and from the mainland and Asia. It issues periodic bibliographic aids for scholars and gives in-service training for Asian-Pacific librarians. Ultimately a library building will become part of the East-West Center complex. (Chapter 19 on the University Library considers its relationships to the Center's library.)

East-West Center Press

The East-West Center Press publishes new books originating within the Center as well as from other institutions throughout the world. It exports American scholarly books to Asia and produces Asian books in English for distribution in the West.

Conferences and Seminars

Through cooperation of the three institutes, international conferences and seminars are initiated and organized to serve Center purposes. Conferences support existing programs and provide planning opportunities for new programs. International conferences not sponsored by the Center also are hosted in East-West Center facilities.

Chief Developments, 1963-68

The past five years were marked by steady improvement in the selection of foreign and American scholars and students for scholarship grants, strengthening of University of Hawaii curricula in fields relevant to East-West interchange, and by development of new knowledge and skills in the intricate process of promoting mutual understanding through cultural interchange. The groundwork was also laid for gradually shifting the Center's emphasis toward problem-oriented programs to promote mutual understanding through common involvement in attacking specific problems of concern to both East and West. Three surveys by distinguished academic groups, studying the lessons learned in this unique experiment in international education, pointed the way to planning the Population Program, begun in 1968, and other problem-oriented research programs outlined below.

During the five-year period, several small but selective academic programs were added. These included: (1) the International Development Fellowships awarded to carefully selected graduate students, mainly from Asia, for Ph.D. studies at mainland universities and the University of Hawaii in the application of social sciences in development; (2) the Teacher Interchange Program for experienced high school teachers in social sciences, history and the humanities to upgrade the teaching of Asian studies in American secondary schools, and Western studies in Asian schools; (3) the Junior Year in Hawaii program for intensive Chinese and Japanese language and area studies for selected American undergraduates whose colleges do not have Asian studies programs; (4) the Language Intern program for Asians teaching their own languages to foreigners; (5) the Language Teachers Training Program for American teachers of Chinese and Japanese.

Notable advances in cultural interchange and understanding were achieved by involvement of grantees, through the East-West Center Grantees' Association, working with Center administration officials in such fields as student discipline, selections, field studies, housing, special summer programs, English language teaching and broad program development.

Technical training activities of the Institute for Technical Interchange were broadened to include field training projects and workshops in various Pacific island areas. The main thrust of ITI training was aimed at helping the development of peoples in the U.S. Trust Territory, but other work was carried on as well in other Pacific island areas and in selected fields of endeavor in Asia, such as hotel management training.

Selection of Senior Specialists in the Institute of Advanced Projects was based on research proposals directly relevant to international development and cross-cultural relations. Thirty-four Occasional Papers and two bilingual dictionaries were produced by Research Publications and Translations.

The East-West Center Press, since its founding in 1963, published 70 books, of which 30 were original works issuing from the East-West Center.

The East-West Center Library collection grew to over 270,000 volumes and 20,000 reels of microfilm by 1968.

A wide variety of conferences and seminars focused on East-West problems of concern to scholars and policymakers. Responsibility for conferences and seminars was shifted to the office of the Deputy Chancellor for Academic Affairs in 1968 for improved coordination with existing and developing academic programs.

The report of the U.S. Advisory Commission on International Educational and Cultural Affairs on the East-West Center (better known as the "Larsen Report") in 1964 confirmed the soundness of the Center's objectives and commended the work of the institutes. It recommended establishment of a National Review Board to advise the Secretary of State on East-West Center matters and the board was appointed later that year. The Larsen Report also strongly recommended that focus be directed on fewer programs and closer coordination among the three institutes. A few months later the East-West Center Committee on Reorganization made a report which included the following recommendations: coordinated program development; closer EWC-UH cooperation; and specification of "unique educational programs" on a multinational, multi-level, multi-disciplinary basis.

In 1967 a joint EWC-UH Task Force completed a five-year program projection recommending emphasis on identifying problems of Asian and American concern, and then devoting the resources of the East-West Center to seeking solutions. The Task Force said that problem-oriented programs should not entirely replace the on-going Center programs in the three institutes and should begin gradually and be carefully evaluated. Five areas were suggested for consideration of integrated Center problem-solving programs: modernization—economic, political, educational administrative, and ideological aspects; conflict resolution—in political, economic, racial and religious spheres; food and population—including such factors as public health, employment, use of leisure, etc.; language—structural and social aspects, ranging from language description and learning to language in international relations; communication—the communication revolution and its management, communication between and within cultures, methods of passing on knowledge gained from research to peoples concerned.

The first problem-oriented program in population dynamics was made possible by a grant of $3.7 million from AID in June, 1968. The five-year grant enables the Center to undertake a multidisciplinary research, study, and training program involving Center staff, University of Hawai resources, Senior Specialists in the Institute of Advanced Projects, graduate students in the Institute for Student Interchange, and a broad range of training participants in the Institute for Technical Interchange. Working relationships with Asian and U.S. mainland institutions in population problems research will be developed.

Chief Developments Expected 1968-76

The major task during the years 1968-76 will be gradually to integrate the work of the Center around programs and subprograms, a major portion of which will be problem-oriented. The broad, long-range Center goals specified in the legislation which created it will be broken down into subgoals stated as expected results or accomplishments, and ranked in priority.

These statements will identify the basic functions or programs of the Center. An analysis of alternatives will be undertaken to identify which activities should comprise the programs of the Center. Existing Center activities and projects will be analyzed, evaluated and related to these basic programs. A scheme of program responsibility will be established to ensure involvement of University and Asian scholars, grantees and Center units in decision-making. A system of program evaluation will be outlined and gradually developed. Five- and ten-year projections of program accomplishments and costs for all programs will follow. New, problem-oriented programs will be developed to fit within the total program structure.

Financial support for problem-oriented programs will come from reallocation of existing Center resources and also will be sought from outside sources, including private foundations and various government agencies in the United States and in Asian-Pacific countries.

As new programs develop, the number of ISI, ITI and IAP grants will increase to the limits of space available in dormitories and offices. Realistic consideration must be given to necessary expansion of the physical plant. The East-West Center Press, given some additional funding, should approximately double the volume of its sales and reach a break-even point in operations. The East-West Center Library holdings of Asian materials will increase by nearly 240,000 volumes, if the current acquisition rate can be maintained. ISI will deploy staff in Asia for improved selection and field activities and will bring Center alumni into service as selection committee members and interpreters of the Center for Asian universities.

Evaluation of programs, both old and new, will become a cyclic process of assessing goals, plans, operations and results. The degree to which programs are congruent with and supportive of the larger purposes of the Center will remain a major criterion for evaluation.

Development of Problem-Oriented Programs

The problem-oriented approach, referred to above, is a new policy and goal in the Center's search for East-West understanding, promising a closer integration of the Center's activities. Planning for the period ahead will be devoted to problem-oriented programs.

With this approach, the Center expects to sharpen further the concept of a multidisciplinary problem-oriented program; execute the new program on population dynamics in accordance with the concept; and develop additional programs, where studies indicate feasibility, in the general problem areas of food, development (modernization), intercultural communication, higher education and the development of human resources, and values and society.

Criteria

There is no end to problems of common concern to East and West. The task is to isolate the few with which the Center and the University may logically be concerned. The Center's perspective on projects will be middle range, neither directly operational (for that belongs to government agencies) nor wholly long range (for that belongs to the basic research functions of universities).

Problems suitable to the East-West Center for its programs will first be delimited as follows: any area recognized by policymakers and scholars in Asian-Pacific countries and the United States as impeding social, economic or cultural betterment for which there is an actual or assumed solution.

Further criteria for selection of problems and outlining of programs to solve them include: (1) Each problem should be consequential to both East and West and capable of being defined and worked on in an interdisciplinary fashion by research investigators from East and West working together; (2) the problem should be of contemporary significance but future-oriented; (3) programs should be distinctive, not duplicating work on problems being studied elsewhere; (4) programs should have a comprehensive plan, including evaluation, a self-correcting method of operation, competent people and a budget; (5) programs should have a research design which will provide a systematic attack on the problem and interrelate all projects carried out by the program, and a design for both education and interchange; (6) the problem-solving program must lie within the capabilities of the East-West Center, the University and the community of Hawaii.

Characteristics of Program Organization and Operation

Problem-oriented programs, although academic in nature and content, will not duplicate University programs but be complementary to them. In a university, scholars are grouped around a common discipline, presided over by a chairman, and called a faculty or department. In the East-West Center, the plan is to group scholars in programs organized around a problem, to draw them from several disciplines, and to select a director to preside over the group.

Each program will have several projects whose members will constitute teams, that is, groups of people with differing functions who have the same orientation and who will cooperate to achieve a common goal. Whereas faculty members of a university department are a residential group on a single campus, members of teams may be resident on many campuses, with continuity and coordination provided for by the director and staff at the EWC and the members of the team who are on the University faculty or temporarily in residence at the Center.

The team concept envisages groups of both older and younger scholars from Asia, America and the Pacific who will meet initially in residence at the EWC. A single team will be made up of scholars who are EWC staff, members of the UH faculty, or senior specialists, University students, including grantees on EWC scholarships, and possibly trainees from ITI. A team member will be asked to make a rather long-term commitment to cooperate on the problems through continuing teaching, research or other work after returning to his home institution. It is hoped that his home institution will also agree to cooperate in support of the activities engaged in by the team member. Team members coming to the EWC-UH and returning to their home institutions will form strands in a growing network of responsible scholars and institutions.

During residence in Hawaii student members will take courses at this University, assist senior scholars in residence with their research and writing, find their own places on the team, live with other students in dormitories, and engage in various extra-curricular activities coordinated by the EWC staff. Senior specialist members will engage in research, and some will hold advanced seminars at the University under an arrangement of joint appointments. They will evaluate the problem-related research plans of students and possibly give lectures to the trainees. Hawaii faculty who are members of a team will join in the research and continue their teaching, advising and other activities, the amount of each depending upon arrangements made.

Each program will have a field project. As a research, education and training laboratory, the project will bring together scholars, students and trainees from East and West under new and different conditions of study, work and living. Younger members of the team (students) would be given direction and advice by older members. It will be in the field project that students do their field work for their theses and dissertations. (In addition to programs for students, the Center will continue to sponsor non-degree training programs. Such activities will, to a certain extent, be coordinated with and related to the team approach proposed here.) Team members, in addition to their teaching and research activities, will be encouraged to engage in related community services according to the needs of their own societies and governments. Presumably, as the work progresses, specific and useful solutions to current problems will be found. Local application will be necessary, and team members should be able to offer technical training and to conduct applied research within the community. The decision as to whether technical training should take place in Hawaii or in the home country will be made according to circumstances. In general, training undertaken at the EWC will be only in highly specialized and unusual fields, or possibly for those areas of the Pacific and Asia where training facilities are inadequate and trained personnel are few.

Although questions have been raised in the past about the advisability of the Center providing scholarships at the Ph.D. level, the kind of program outlined here calls for the continuation of such training. These grants will be made primarily to persons who have already received the master's degree under the tutelage of a team member, although provision should be made for those of exceptional ability coming through other channels. Arrangements will be made among team members to supervise dissertation research and advanced study on a cooperative basis. In this way, the team will take advantage of the best facilities of each institution. Since the team approach assumes the long-range point of view, the ultimate impact of a program including Ph.D. candidates would be greater than if concentration were placed only on the master's degree. Not only will these doctoral students be leaders in their countries 15 to 20 years from now; they will also have developed their ability to communicate cross-culturally, to contribute to the solution of problems, to become teachers of teachers, to advise the Center, and to maintain the community of understanding. This team approach, especially as it is systematized through nominations by team members, should give greater assurance that these younger scholars will not become part of the "brain drain."

Besides common program services, much of the work now performed for advanced scholars, students and trainees will need to be continued. Just as a university provides a program of services to enrich student life and help students cope with personal and health problems, so the Center must provide such services to students and trainees. All participants will need help with housing, visas, transportation and orientation. Along with extra-curricular activities to enhance informal interchange, students will still be encouraged to participate in various activities which they help to plan, and there will have to be a place where problems of discipline are handled.

For UH-EWC relations under this scheme, the organization of the University around the disciplines and the Center's organization around problems should provide a vigorous and dynamic record of concrete achievement. Participation in the programs by University faculty will be essential. Indeed, the programs will depend upon close cooperation, since related teaching and research activities will have to be provided at the University; students will continue to need University course work; and senior scholars in residence will in some cases receive joint appointments with academic departments. Such interaction between the two institutions can enliven considerably the educational endeavor on the Manoa campus.

The Educational Significance of Problem-Oriented Programs

The problem-oriented program has a number of characteristics which will give it educational significance. Because it sets forth actual problems of some consequence, to which there may be several possible solutions (or perhaps only inadequate accommodations) it will require fitting theory to reality.

Although considerable responsibility will rest with the director of each program, all those engaged in and being educated through this activity will be finding data or making decisions which have the possibility of affecting men's lives. Realization of this goal will add the mood of seriousness and relevance which conventional education sometimes lacks.

Since the student is part of a cooperative research program, he will be aware that he must participate actively in the field project and write up his findings if he is to contribute his knowledge to the solution of the problem. This realization should give definite focus to his class work, helping him to relate his work to an ultimate objective, not merely the passing of an examination.

If the present educational crisis evidenced by student revolts on the campuses of American and Asian universities is indeed a crisis of involvement, of students wanting their studies and activities to be relevant to individual and social life, then this problem-oriented design may be a worth-while experiment toward solving that problem.

The Interchange Significance of Problem-Oriented Programs

There are several elements in the design of problem-oriented programs which can enhance interchange so that mutual understanding will be facilitated. EWC students will be working in small groups where more and deeper interchange can take place and each program and project will have well-defined goals involving participants. The participants, especially doctoral candidates, will share common experiences over longer periods of time. All these factors should influence the amount and quality of the interchange and produce conditions conducive to understanding. Members of the team living and working together over a period of months under circumstances which may become trying as well as strenuous will develop special ties of friendship and deeper understanding. Thus the whole setting of the field projects will provide a range of both intellectual and human experiences hitherto not attempted in the search for interchange.

Another important factor affecting interchange will be that within the design, a student must be prepared, not only in the theory and methodology of his discipline, but also in appropriate language and area work for the field project abroad; this will equip him for deeper understanding of the people of the country in which he works.

Stages in Developing Problem-Oriented Programs

The Center will utilize the work of prior years in identifying broad problem areas of concern to East and West and in which the University has scholarly strength. Special care will be taken to organize and support interdisciplinary seminars or informal discussion groups to investigate and delimit, in accordance with the EWC criteria, a suitable problem in the topical area and to assess the feasibilty of a program based upon it. Grantees and senior specialists from Asia, as well as other Asian scholars, will be invited to participate in formulating the problem and proposing projects, along with University faculty and specialists from local agencies.

In 1968-69 seminar groups are being formed in all five areas suggested above, in addition to the population dynamics program, and will be supported for periods of time varying with accomplishments. The expected output of each seminar will be a brief program prospectus, drawn in accordance with EWC criteria, which can be shared widely with scholars and policymakers in Asia and America for criticism, suggestions and stimulation of interest. In some cases, it may be determined that a program is not possible under current circumstances.

Whenever feasible, international conferences will be held to further the planning of the program delimited in the prospectus and to enlarge the list of potential projects which the program might consider. Guided by the findings of the seminar and conference, a working group will draft a program proposal which emphasizes the characteristics established by the Center. If the Center supports the proposal, it will reallocate internal resources (staff, space, grants) and usually seek outside funding to augment its efforts.

With plans, personnel and funds, each program will become operational and will fit within the total structure of the Center. Program teams will be formed as described above. Periodic review, evaluation and revision in the direction of specified program accomplishments will be undertaken. Program life span will probably be projected for not less than 10 years.

By 1976 the Center should have problem-oriented programs in operation within the areas which studies indicate are promising and likely to be rewarding. It will also continue programs along existing lines, and maintain some small capacity to respond to opportunities yet unknown.

Part III: FISCAL AND ECONOMIC ASPECTS OF THE DEVELOPMENT PLAN

Chapter 28: HOW THE UNIVERSITY'S OPERATIONS ARE FINANCED

The authors of Academic Development Plan I courageously undertook to project a dozen years into the future the costs of operating the University under the expansion they foresaw. Only five years have elapsed since those projections were made, and already the annual operational budget of the University exceeds that projected for 1975! Furthermore, the projected estimates of the state general fund—a chief support of the University—made in Plan I were so low that the level projected for 1975 was actually reached in 1967.*

This is by way of comment on the perils of economic forecasting in a time of rapid change, and not apology, since similar projections made in the early 1960's by government and private enterprise alike also fell short of the mark. And for good reason: published projections have to be cautious, lest they encourage the expansion of programs beyond what can be readily supported, and this decade has turned out to be a time when caution may lead one far afield as increases in the state's population, income and price level compound annually. With respect to University expenditures, no one in 1963 anticipated the rapid growth in extramural funds which the University would attract, mostly from the federal government, in support of its research, teaching and service programs. Prediction is quite as difficult now, as the nation waits for the end of warfare in Vietnam and for the budgetary "peace dividend" which could help finance the massive aids to higher education already authorized by the Congress, but now funded at low levels.

However hazardous economic and fiscal predictions may be, they are necessary to relate the University's development to that of the state. Happily for the drafters of the present Academic Development Plan, there are available to it estimates of Hawaii's general fund revenues and of the University's operating budget requirements projected to July 1975, within one year of the close of the period covered by this Plan.

OPERATING COSTS OF THE UNIVERSITY SYSTEM

The University of Hawaii, a large and complex public corporation, receives its funds from a variety of sources. First, it has a small endowment—$6 million appropriated by the Congress after statehood in lieu of the land grant received by mainland state universities, rental income from Sand Island (turned over to the state by the federal government with this dedication), a majority of shares in the Honolulu Stadium Corporation, plus a modest amount of other securities and property given to the University. The annual income from this endowment is growing but still minor, supplying less than 2 per cent of the institution's annual operating costs.

The University itself now collects about $7 million annually in tuition and other fees (including those collected by the Summer Session and by Continuing Education evening courses), plus an additional amount from the sale of goods and services (dormitories, bookstore and parking lots) or from leasing concessions (cafeterias and vending machines). Income from sales and leases—after approximately 7 per cent is skimmed by the state general fund to help finance state operations—is largely earmarked for the service of bonds issued for the construction and operation of dormitories and parking facilities, and so is not available to help finance the University's operating budget.

A much larger amount, now approximately $28 million annually, is received from sources outside the state, labelled "extramural support" in the following table. Most of this category consists of federal grants: institutional grants, such as those going to land-grant colleges and the new sea-grant colleges on a formula basis; and grants won by individual faculty members or departments in a national competition for the support of their research projects, teaching institutes or service programs. Special cases include the federal appropriation (about $5 million annually) for the operation of the East-West Center and the contractual payment (current $2 million) for the University's Peace Corps training program. Private foundations (e.g., Ford Foundation in support of Asian studies, the Commonwealth Fund for the School of Medicine and the China Medical Board for the School of Public Health) supply fixed term grants which are vital for the programs they benefit, but still quite small in the totality of University financing.

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*Part of the discrepancy between estimate and reality was caused by special hazards of revenue forecasting: tax rates were increased in 1966 and the state changed its arrangements for supporting county governments out of its own general fund receipts.

The residual, the net amount appropriated to the University by the state legislature after taking into account the foregoing moneys, currently approximates $31 million or about two-fifths of the University's annual operating budget, inclusive of the community colleges. (For the Manoa and Hilo campuses alone, the fraction is slightly smaller.) It is this amount which is a charge on the tax sources of the state. Considering its financial support, then, Hawaii may be termed a national institution as well as a state university, but its control remains much more within the structure of the state government.

In actual budgeting practice, estimated tuition and other University-collected receipts are included in the state's appropriation from its general fund, with actual receipts during fiscal year going to replenish that fund. Since 1967 the University has received a lump-sum appropriation so as to give it considerable and helpful flexibility in the expenditure of its budget, subject to legislative instructions.

Cost Projections

The Business Affairs Office of the University has projected the operating expenditures of the University of Hawaii system to the fiscal year 1974-75, taking as the base of its projections the estimates of student enrollment—and consequently the program expansion—contemplated by this Academic Development Plan. It should be observed that, aside from the problematic expansion of the School of Medicine from two to four years—and that only if extra-mural support can be obtained and does not impede the normal development of the University—none of the changes contemplated by this Plan are exceptionally expensive. No new professional schools are included here, though there has been recurring interest expressed by the Hawaii Judicial Council and the Honolulu Bar Association, among others, in creating a law school at the University of Hawaii. Even if a law school were to be created, its major expense would be the cost of a building, if one had to be provided on campus, rather than its annual operating costs, which may be roughly estimated at about $500,000.[*] In a University bud-

TABLE A

SOURCES OF CONSOLIDATED OPERATING BUDGET OF UNIVERSITY BUDGET

	Actual: 1967-68		Budgeted: 1968-69	
	Millions	% of Total	Millions	% of Total
University receipts (Tuition fees and other receipts)	$10.7	16.0	$12.0	16.8
Extramural income: Federal grants and other	28.8	43.2	28.0	39.3
State general fund, net cost (essentially tax monies)	27.2	40.8	31.3	43.9
TOTAL	$66.7	100.0%	$71.3	100.0%

Note: University receipts include Summer Session and Continuing Education (General Studies) tuition receipts, which are specially funded. "Endowment income" from Sand Island dedication and $6 million trust fund established by Congress included in "extramural income."

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[*] The Association of American Law Schools estimated, on the basis of 1966-67 costs, that an annual expenditure of $480,000 was required for a law school in full operation—$300,000 for salaries and fringe benefits, $50,000 for library acquisitions, $100,000 for administration, and $30,000 for scholarships. Quoted from a report on *The Feasibility of Establishing a Law School at the University of Hawaii* (Office of the President of the University, Honolulu, January 1968, p. 20).

TABLE B

OPERATING REQUIREMENTS OF THE UNIVERSITY OF HAWAII ACTUAL AND PROJECTED TO 1975

(in millions)

	Expenditures			Source of Funds		
Fiscal Year Ending:	UH Proper & East-West Center	Community Colleges	Total	General Fund (1)	Other Sources (2)	Total
1967 (actual)	$ 54.8	$ 2.7	$ 57.4	$24.0	$33.4	$ 57.4
1968 (actual)	63.2	3.4	66.6	27.2	38.5	66.7
1969 (budgeted)	65.9	5.5	71.3	31.3	40.0	71.3
1970 (requested)	74.0	6.9	80.9	40.1	40.8	80.9
1975 (projected)	119.7	11.5	131.3	70.0	61.3	131.3

Sources: University of Hawaii Budget Request for 1969-70, especially Figure III, p. xi, plus additional data supplied by University budget office.

Notes: (1) Cost to general fund, net of tuition and other University receipts deposited in fund.
(2) University income, including tuition, plus federal and foundation support.

get which will exceed $100 million within a few years, the addition of a law school would be a significant but not major increment.

The budget specialists also projected the division of costs between the sources which support the University, detailed just above. In making these projections, it was assumed, most conservatively, that federal funds would increase by only half, between 1968 and 1975, while total University operating expenditures would more than double.

In view of the history of the past decade, the 1975 projections are likely to prove to be too small, most probably because they understate extramural support and tuition income. However, the figures shown in Table B offer the best projections which are now available, and do give a "ball park" estimate of future budgetary needs.

STATE REVENUE PROJECTIONS

The self-same warnings apply to the other side of the balance sheet, showing projections of the general fund of the state government, from which the legislature appropriates tax support of the University. Projections of general fund tax revenues have been made recently by state analysts to the fiscal year 1975. These are summarized in the following table. (Table C)

TABLE C

GENERAL FUND TAX REVENUES, STATE OF HAWAII

Actual and Projected to 1975
(in millions)

Fiscal Year Ending:	Tax Revenues	% Increase Over 1967
1967 (actual)	$205.3	–
1968 (actual)	226.3	10%
1969 (estimated)	266.0	29%
1970 (estimated)	299.0	46%
1975 (lower estimate)	385.0	88%
(higher estimate)	440.0	114%

The reader should know that state tax departments (source of the lower estimate for 1975 in Table C) habitually underestimate revenue collections. To them, Micawber's famous equation of surplus with happiness, deficit with misery, applies with the strength of large numbers. If the state's fiscal officers underestimate tax receipts and a positive budget balance ensues, they are usually praised as prudent men and good managers. But if they err in the other direction, they are vulnerable to damnation as deficit makers, or at least accessories before the fact. So in weighing the estimates, they tend to push up on the scales, not down. Hawaii's tax department has underestimated tax revenues in virtually every year since World War II. For this reason, in the ensuing discussion the higher projection for 1975 has been adopted, with the confident expectation that it, too, will prove to be an underestimation of the productivity of the Hawaii state tax system.

TABLE D

RELATIONSHIP OF UNIVERSITY OPERATING BUDGET REQUIREMENTS FROM GENERAL FUND TO FUND'S TAX REVENUES
Actual and Projected to 1975
(in millions)

Fiscal Year Ending:	UH Requirements from General Fund (Table B)	General Fund Tax Revenues (Table C)	UH Requirements as Percentage of Revenues
1967 (actual)	$24.0	$205.3	12%
1968 (actual)	27.2	226.3	12%
1969 (estimated)	31.3	266.0	12%
1970 (projected)	40.1	299.0	13%
1975 (projected)	70.0	440.0	16%

THE UNIVERSITY IN THE STATE BUDGET

Basic data and necessary projections are now available to test if the University of Hawaii is likely, under the period of this Academic Development Plan, to demand a significantly larger share of state tax revenues. Table D brings together the relevant information from the tables immediately preceding.

The historical data of the past two years in Table D show that the portion of state general fund tax moneys going to support the University of Hawaii has been constant at 12 per cent. This percentage is identical with the one computed five years ago in Academic Development Plan I. In other words, the costs to the state government of operating the University have risen at the same rate as have the general tax revenues of the state. The projections for the years immediately ahead suggest that, as the community colleges develop and the University's student population requires a second major campus, the percentage may gradually rise to about 16 per cent—assuming retention of the present tuition rates of $85 per semester plus a general fee of $18.

The problem of setting tuition rates lies outside the bounds of this Academic Development Plan. However, the question directly affects the level of financing of the University, and therefore its capability of carrying out its academic plans. An ad hoc group should be appointed by the University—with faculty, student administration and perhaps citizen members—to study the fiscal and educational aspects of the problem and then make recommendations concerning the tuition structure of the entire University system, including the Community Colleges, Summer Session and extension courses, as well as the Manoa and Hilo campuses. Special policy questions arising from the dependence of the Summer Session and Division of Continuing Education on tuition receipts were briefly noted above in the sections of this plan dealing with these two units, Chapters 21 and 22.

Accepting the most pessimistic fiscal assumptions—even if federal funds were curtailed and if tuition is not increased—the proportionate increase in the University's state support "does not seem to be beyond the economic capability of the state." This was the conclusion reached in Academic Development Plan I (p. 112). It has been verified by the experience of the past five years and there appears no reason to modify it now.

Chapter 29: IMPACT OF THE UNIVERSITY ON THE HAWAII ECONOMY

The value of education beyond the high school is beyond dispute. It benefits both the person receiving it and society at large. For the individual it may provide quantifiable material benefits, such as a better paying job, as well as intangible rewards, such as the enrichment of his life. A study of 10,000 college graduates and 6,000 high school graduates indicated that a male college graduate earned about three-fifths more than a high school graduate of his same age.* Other studies of this sort have shown similar differentials.

The economic benefits of higher education to society as a whole are harder to measure, but they are also beyond dispute. Well-educated workers are more adaptable to changing economic conditions and are therefore less frequently unemployed; education by helping reduce anti-social behavior cuts down on police and other social costs; productivity of the work force increases with education (studies suggest that more than one-fifth of the economic growth of the United States in the last 30 to 40 years is attributable to increases in the average education of the labor force). These statements, however, are applicable to the country as a whole and to education as a whole.

The measurement of impact of the University of Hawaii on the Hawaii economy is subject to many more imponderables. For example, the benefits to the state of *having* x-number of graduates practicing in some field is not the same as the benefits of having a university that *graduates* x-number of graduates, although it might be about the same for the country as a whole.

Therefore this discussion first considers only the effect on the aggregate income of Hawaii of the expenditures of the University of Hawaii and its students. It attempts to answer the question: How much annual income would be lost to the people of Hawaii if the University system did not exist? The Economic Research Center of the University has provided a method of estimating this amount. The method utilizes simplifying assumptions, notably concerning the expenditures multiplier, and precise data are sometimes lacking, but conceptually the statement of the problem is relatively simple and a list of the necessary assumptions and estimates of the imprecise data is rather short.

If the University did not exist, a large number of local students who attend it would leave to attend out-of-state institutions. In addition, federal funds received by the University plus the expenditures of mainland and foreign students would be lost to the state's economy. Thus, in economic terms, we would be "exporting" less (there would be a loss of federal funds and overseas students' local expenditures) and "importing" more (buying out-of-state university service), to the long-term detriment of the state economy.

What impact this would have on the total income of the state depends on, first, what portion of this initial loss of expenditure (federal funds, etc.) represents actual income lost to Hawaii residents and, second, what is the multiplier effect on the economy of this income loss.

Consider first the case of federal and other extramural funds. These funds coming from outside the state are spent in a multitude of different ways. A grant to the University for an on-site study of Chamorro dialects on Guam obviously generates as income in Hawaii a smaller part of the grant than would a grant for a study of pidgin in Kona. A grant of a thousand dollars for scientific equipment, expended on the mainland, results in no additional income to residents of Hawaii, but $1,000 in salary payments to a College of Tropical Agriculture extension worker is respent in the state and so generates additional income here. In a study of Hawaii's export industries in 1960, the First National Bank estimated that 79 per cent of military expenditures, but only 53 per cent of pineapple expenditures, became income to residents. University expenditures from federal and other extramural funds probably would show an income figure more like the military than like the pineapple industry. As a first approximation, we assume that 80 per cent of University expenditures from extramural funds are initially income to individuals in Hawaii. The income received will in general be split three ways: most will be spent locally for a variety of goods and services; a part will be used to pay federal and state taxes; a part will be saved. Of the part that is spent, some portion will remain in the state to become in turn income to other Hawaii residents, but a portion will leave the state to pay for imported goods and services, thus becoming income to mainland or foreign residents.

The study of the First National Bank, *The Impact of Exports*, estimated that the proportion saved by Hawaii residents or paid out in federal income taxes is 16 per cent, leaving 84 per cent for spending on goods and services. Overall, economists of the bank estimated that a dollar of federal spending in Hawaii, after successive respending and "leakages" outside the state economy, ultimately generated $1.37 of income here. The multiplier for federal expenditures in Hawaii, in other words, was estimated to be about 1.37.

Applying this multiplier to the federal and other extramural funds received and spent by the University

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*Quoted in *Economic Report of the President of the U.S.*, Jan. 1967, p. 145. It is apparent that factors other than higher education, such as greater energy, motivation or native intelligence may enter into this comparison, but it is reasonable to attribute a significant part of the differential to the educational experience itself.

in fiscal 1969 the following figures showing the total impact in the state economy are derived:

Expenditures of Federal and Other Extramural Fund	28.0 million
Multiplier	1.37
Income Generated	$38.4 million

The University's contribution to the economy, because of student expenditures, may be very roughly estimated in the following way. Table E gives the enrollment projections.

TABLE E

DAYTIME ENROLLMENT IN UNIVERSITY SYSTEM: FALL 1968

Manoa Day	17,080
Hilo	680
Community Colleges	5,500
TOTAL	23,260

Consider the students as if they were tourists in Hawaii here to study instead of to swim. How many would not be spending their money here if the University were not here?[*] In other words, how many would be going to mainland colleges or universities?

Not all of the present or projected number would go to the mainland. Those with close ties or obligations in Hawaii would shift to local private colleges and technical schools, or stop their formal education. This number probably would exceed the 6,300 now at Hilo and the community colleges, the campuses which particularly serve the commuting student. At the other limit, the 4,000 overseas students now at the Manoa Campus would almost certainly not be here if there were no University of Hawaii.

TABLE F

ESTIMATES OF STUDENT POPULATION LOST IF UNIVERSITY OF HAWAII DID NOT EXIST

Line 1	Hilo and Community College students will stay	6,300
2	Overseas students will leave	4,000
	Of the rest:	13,000
3	a. 25% would leave	3,250
4	b. 50% would leave	6,500
5	c. 75% would leave	9,750
	Total students who would leave if University of Hawaii did not exist:	
6	Line 2 + line 3	7,250
7	Line 2 + line 4	10,500
8	Line 2 + line 5	13,750

So the number lost would be somewhere between 4,000 and 17,000; any estimate in between is purely conjectural. Assuming three estimates, 25, 50, and 75 per cent of this range gives the following estimates of the number of students who are here if and only if the University is here.

Local expenditures of students vary, depending on whether they live at home, whether they live in dormitories, or whether they make other living arrangements. A 1967 survey of living accommodations of Manoa campus students showed 11 per cent living in dormitories, 61 per cent at home and 28 per cent with other arrangements. Minimum expenses for students in dormitories have been estimated by the Office of Student Personnel at $2,100. Deducting $232 for tuition and fees leaves $1,868 for local expenditures, not including medical care. Assuming medical cost per student is $32, the total minimum costs for students in dormitories is $1,900. Cost for students living at home is less by the cost of housing of about $400, or $1,500. Cost for students in other accommodations is purely conjectural as no survey of their expenditures has been made. For simplicity, we will assume that it is only slightly over that of students living in dormitories, or $2,000. Applying these figures to the current ratio of students at home or away from home, and assuming no change in the ratio, gives an average total expenditure per student of $1,500 x 0.61 (for those living at home) plus $2,000 x 0.39 (for those living away from home) or $1,695—for convenience rounded to $1,700.

Applying this average to the range of students conjectured to leave, the local expenditures which would be lost if the University were not in Hawaii is then as follows:

	No. of Students	Expenditure Per Student	Total Expenditure
a.	7,250	$1,700	$12,325,000
b.	10,500	1,700	17,850,000
c.	13,750	1,700	23,375,000

In lieu of better data, the estimate developed in the *Impact of Exports* study for the tourist industry appears to be the best approximation to the per cent of income initially generated by student expenditure; i.e., 54 cents of every dollar remains as local income. Applying this to the local income multiplier, the total income effect of the student expenditure is 0.93.[*]

The total income effect of the student expenditure is then projected, using each of the three asumptions as to the number of students who would *not* be in Hawaii if there were no university here.

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[*] We leave out of consideration the effect the exodus of students would have on the local expenditures of the families supporting students going to the mainland.

[*] $.54 \qquad \frac{1}{1 - (.84)\ (.496)} \qquad = .93$

Aggregate Annual Income = .93 Student Expenditures

a.	$11,462,000
b.	16,600,000
c.	21,739,000

These computations of income generated by the federal expenditure and the student expenditure are summarized in Table G.

TABLE G

ANNUAL INCOME GENERATED AT THE UNIVERSITY OF HAWAII THAT WOULD BE LOST IF UNIVERSITY DID NOT EXIST
1968-69 ESTIMATE
(in millions)

On account of:	
1. Federal and other extramural funds	$38.4
2. Student Expenditures (see above)	
a.	11.5
b.	16.6
c.	21.7
Total income generated:	
a. (1 + 2a)	$49.9
b. (1 + 2b)	55.0
c. (1 + 2c)	60.1

These estimates give a high and a low which are approximately plus and minus 10 per cent of the middle estimate and probably are of the right order of magnitude. They suggest that the extra income attributable to the operations of the University of Hawaii exceeds by a considerable margin the amount appropriated to it out of the general fund of the state government. This does not say that the University comes free—its real costs are the alternative uses which might be made of the land it occupies and the manpower, buildings, equipment and supplies it uses —but it does say that, even if it were just a spender and not a producer, the University brings into or saves for the Hawaii economy a large amount of money which creates employment, raises the level of savings and investment, and even generates state taxes which offset in part the annual appropriation made by the legislature.

CONTRIBUTIONS OF THE UNIVERSITY TO THE HAWAII ECONOMY AND SOCIETY

If the real cost of the University to the state is not the size of the annual legislative appropriation, but rather the income which might be obtained from other uses of the land, capital and human resources now employed by the University, what can be said about the "real" output of the institution? In the present state of the art of economic quantification (some economists would say the difficulties of measurement encountered here are not temporary but inherently insoluble), most of the services rendered by the University cannot be given a market value. However, even a listing of the benefits created by this public institution is suggestive of its worth.

1. Instruction: Undergraduate, Graduate, Professional

Most teachers, engineers, accountants, business administrators, public administrators, agriculture specialists, nurses and social workers now working in Hawaii are alumni of this state university. A large portion of the doctors, lawyers and other professionals practicing here received a portion of their higher education at the University.

No one can yet put a value on this education with any pretense of precision, but it is possible to get some inkling of the order of magnitude. Considering that there are about 20,000 UH alumni in the state who received their baccalaureates or advanced degrees from the University plus a number about as large who completed a substantial part thereof, and assuming—(1) that only half of them are active in the state economy; (2) that the 60 per cent income differential for persons with college education noted earlier in this section as a national estimate applies to Hawaii—then the additional personal income received in a year by alumni of this University by virtue of their UH education is of the order of magnitude of $100 million. This addition to the state's productivity was produced, obviously, by the education of many generations of students. As the "output" of the University, crudely measured by degrees granted or student semester hours taught, continues to mount, the additional personal income attributable to the instructional programs will grow proportionately.

Continuing education is offered by the professional schools of the University. Each year thousands of professional people working in Hawaii have their education updated and enriched by courses, seminars and workshops offered by the Colleges of Business Administration, Education, Engineering, Tropical Agriculture, by the Schools of Medicine, Nursing, Public Health, Social Work and Library Studies. The cost to the state's general fund is slight, since most of these programs are self-financed or supported by federal grants; the benefits to the state's practitioners and their clients is significant, but unreckoned.

Still more elusive of economic calculation is the value of social leadership developed by alumni of the University, and reasonably attributable in part to their experience in higher education. A majority of Hawaii's legislators, the entire Congressional delegation of the state, and a large proportion of other public officers and community leaders have studied at the University of Hawaii—and the proportion seems to be growing.

2. Research and Research Support

A new edition (November 1968) of the directory on *Hawaii's Scientific Resources* published by the State Department of Planning and Economic Development reports that there are 49 research-and-development and allied companies in Hawaii, that 26 science-related organizations have been established here since mid-1966, employing some 3,800 scientists and professional personnel. Dr. Shelley M. Mark, director of the department, points out in his introduction, that one reason for the rapid growth in the state's science-based industry is the "outstanding progress" of the University of Hawaii "in professional excellence and scientific capabilities."

It is now a familiar phenomenon of advanced economies that "think" industries cluster around major universities, and this has begun to happen in Hawaii. More than by the research facilities—laboratories, computers, libraries, etc.—of the University, such companies are attracted by the presence of highly competent faculty members who can advise and consult, sometimes for a fee, often without, on the technical problems faced by firms which are involved in the exploration of space or of the ocean deeps, in long-distance information retrieval, in biological research, etc.

By their novelty, the newer industries receive the greater public attention, but Hawaii's agricultural industries are even more important to the state's economy, and the largest concentration of research at the University is in the field of tropical agriculture. Currently, some 190 research projects are underway in the Agricultural Experiment Station, and a staff of 75 extension workers brings the results of advancements in knowledge concerning production and marketing to the agricultural businesses of the state. The Center for Engineering Research of the College of Engineering has a comparable commitment to its profession in Hawaii.

Virtually all of the organized research programs on campus in one way or another are immediately and continuously concerned with the problems of Hawaii. Each year the Economic Research Center, Social Science Research Institute, Hawaii Institute of Geophysics, Hawaii Institute of Marine Biology, Water Resources Research Center, Population Genetics Laboratory, Land Study Bureau, Hawaii Curriculum Center, Legislative Reference Bureau, Youth Development Center, Industrial Relations Center and the Educational Research and Development Center add to the understanding of Hawaii's resources, potential for growth and problems encountered in its growth.

The growth of the University's graduate programs has created another important source of new knowledge for the community. Each year a few score doctoral dissertations and a few hundred master's theses are deposited in the University library, available to the interested public, as are all volumes in the school's general collections. Many of these monographs, to be sure, may be of academic interest only, but others provide information and insight into problems of society, government and business in this state which can be most useful and is readily available. The size and value of this depository of knowledge will grow rapidly in the years to come.

3. Community Services

The portion of community services rendered by the University which is readily visible is that of the units organized for this purpose—the credit and non-credit courses, the Lyceum programs and community leadership workshops of the Division of Continuing Education and Community Service, the constitutional and statutory materials developed and supplied by the Legislative Reference Bureau, the union-management information collated and published by the Industrial Relations Center, the advice to home gardeners and housewives provided in many media by the Hawaii Cooperative Extension Service, etc.

However, a large though incalculable amount of community service is rendered by the faculty and students of the University, acting individually. Virtually every edition of the newspapers in the state lists public lectures, workshops, demonstrations, speeches, exhibits, concerts or public reports given by University staff members. Volunteerism in community programs—from high school tutoring by University students to leadership in PTA's and professional associations by faculty members—is high at the University. It should grow under this Academic Development Plan, which stresses support for faculty participation in the life of the community.

4. Cultural Programs

An aspect of public service which is the particular concern of a university is its contributions to the cultural life of the community, broadly viewed to include sports as well as the arts. A partial list of University of Hawaii activities is suggestive. Staged productions of the Departments of Drama and Theatre and Music present to Honolulu selections from the repertories of both Orient and Occident. Members of the Art Department and their students exhibit their work on and off campus in increasing numbers; there are frequent concerts by the music faculty and their students. Each year, all three departments join in a lively festival of the arts which is becoming a major event of the cultural calendar of this community.

Most of these activities occur in Honolulu, where the bulk of the state's population lives, but dispersion to a wider and more varied audience is beginning. For some years the University's Lyceum program has brought plays, concerts and speakers to the neighbor islands and rural districts of Oahu, but in limited numbers. One constraint has been the limited number of auditoriums for staging these events. Now, the construction of community colleges on each major island offers a statewide facility for staging cultural events arranged by the University, as well as generating more "events" on each new campus. Hilo plans to build an auditorium to serve the community as well as the student body and faculty.

More powerful as a statewide medium for instruction, edification and entertainment is the public television network which the University operates in conjunction with the state Department of Education, discussed in Chapter 22. All but a tiny portion of television sets in the state are in range of the TV network (sometimes, it must be admitted, with marginal reception) and both the quantity and quality of the broadcasts continue to rise. The University's channels now operate on every day but Saturday, and that day will be utilized when the size of the ETV staff makes it possible, provisionally next year. With experience and support, the already good and varied programming should become an outstanding cultural resource of the state.

A special function of the University is to help conserve the ancient culture of this archipelago. It houses and supports the state Committee for the Study and Preservation of Hawaiian Art, Language and Culture. The history, language, legends, religion, music, dances and artifacts of Hawaii are taught and studied at the University, at once helping to retain knowledge of the Polynesian culture and to enrich the present culture by vivifying its Hawaiian heritage.

In its varied enrichment of the cultural environment, the University serves itself and other institutions which require a professional staff, as well as serving the community at large. Salaries are primary in recruiting highly competent and highly mobile experts, and Hawaii's private and public institutions must compete against national salary norms. Of great importance, however, is the quality of life to be enjoyed in the community—the quality of the theatres, movies, symphony, art museums, newspapers, television, athletic recreation, shopping centers, schools and University. As an institution of learning and as a vital supporter of the arts, the University of Hawaii can help educate, attract and retain the creative and skillful people necessary for the continued prosperity of these small islands.

Part IV: SUMMARY OF MAJOR PROJECTIONS OF THE DEVELOPMENT PLAN

THE EMERGING UNIVERSITY OF HAWAII is a federation of campuses, under one Board of Regents and President, with broadly delegated authority with respect to admissions policy and curriculum design on each campus, but conforming to common standards of excellence in academic achievement. Within this system there will be the following division of labor:

The Manoa Campus will continue to offer a wide and expanding range of degree programs, graduate and undergraduate, but with increasing emphasis on upper division and graduate work. It will continue to house the professional schools and administer the research units of the University. Its library, computer center and other basic support facilities will serve the entire University system.

By the time the Manoa Campus reaches a student population of 25,000—around 1974—a second general campus should be established on the island of Oahu, to be developed in phased increments over several years.

The Hilo Campus will expand its present lower division (freshman-sophomore) curricula to become a liberal arts college, offering a baccalaureate in selected fields, plus a limited range of courses in a few professional fields, notably education. At the same time, the Hilo Campus will combine with the Hawaii Technical School to offer instruction akin to that of the community colleges already in operation in all other counties of the state.

The community colleges will accept all high school graduates who present themselves, as well as some without diplomas, relying on intensive academic counseling and selective placement criteria to enroll students in either college-transfer programs or in technical education programs. Students in the former programs will readily be able to transfer to any other campus in the University system, being held to common standards of achievement.

I. MAJOR PROJECTIONS FOR THE UNIVERSITY SYSTEM

1. Centralize admissions intake for the entire system, which would enable a student applicant to indicate his first, second and third choice of campus without having to apply separately to each. Each campus could apply its own admissions standards, which would appropriately vary.

2. Encourage campuses of University system to support each other's programs, following example of Colleges of Business Administration and Education, which use facilities of nearby community colleges for special courses. Reciprocally, make Manoa facilities available to qualified community college students.

3. Provide frequent consultation among faculty members of the several campuses who teach comparable courses, and among admissions officers and other administrators who work with students.

4. On each campus, attempt to reach potential students now barred from higher education by environment or family circumstances; also increase number of students with superior qualifications.

5. Examine the varied tuition structure of the University system and related question of general fund support for Division of Continuing Education evening programs and Summer Session.

Whereas Plan I set the guidelines for the major expansion of the Manoa Campus which occurred during the period of developmental take-off between 1963 and 1968, this Plan concentrates on improvement of programs already in being, more than on growth. Particular attention is given to innovation in meeting the educational goals of the University and in evaluating the results of academic programs.

II. MAJOR PROJECTIONS FOR THE MANOA CAMPUS, GENERALLY

1. Match increasing diversity of students with increasing variety of curriculum choices, learning situations and teaching styles.
2. Foster greater student initiative in learning, placing on those students who can bear it responsibility to create their own education from facilities on campus—decreasing emphasis on lectures, instead developing individual study, audio-tutorial facilities, self-paced learning, credit-by-examination, etc.
3. Increasingly involve students in discussions of academic policies, serving on appropriate committees along with faculty and administrators.
4. Expand and improve academic advising to help students make well-considered curriculum choices and utilize opportunities for individualized learning.
5. Encourage faculty to examine teaching-learning process and to use facilities on campus, notably Instructional Resources Service Center, for improving technology of classroom.
6. Give sustained attention and support to improving general education courses.
7. Study objectives and content of general education core; add more choices; experimentally provide alternative to core.
8. Design new curricula and new approaches to undergraduate instruction, including multi-disciplinary approaches, appraising results carefully.
9. Establish New Division in Office of Vice President for Academic Affairs to give additional support to curricular innovation, to administer Honors Programs and Interdisciplinary Studies.
10. Continue policy of concentrating on fields of study in which University has some inherent advantage, but give all academic departments research support essential to active scholarship.
11. Continue to build University's competence in studies relating to Pacific and Asia, particularly south and eastern Asia and islands off those coasts. Similarly focus international programs; in planning them, ensure that good works abroad do not weaken the University's instructional and service programs at home.
12. Without weakening the present curriculum, encourage colleges to add courses dealing with community problems, particularly courses based on fuller involvement with the greater community.
13. Consider establishing Council on Community Service to review University's service commitments, identify new areas where service is called for, and encourage cooperation of University units in community service projects.
14. Expand University services to people of Hawaii through continuing education—by the College of Arts and Sciences, professional schools, Division of Continuing Education and Community Service, Summer Session and over ETV.
15. Respond to the growing needs of the state and nation by educating an increased number of persons in the various professions, endeavoring to help students in all fields to attain not only the basis for professional competence but also an understanding of the impact of their future work on the quality of civilization.
16. Maintain the University as an open academic community, not taking an institutional position on political or social issues, but opening its doors to those who challenge and those who defend stated positions—as long as they are qualified to discuss the ideas in question and do not try to obstruct others in their equal right of inquiry and expression.

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There are many integrating themes in the planned development of the individual colleges and schools of the Manoa Campus, including a common concern about improving instruction and academic advising, applying a systems analysis to their programs and evaluating their outcomes, using the computer more widely and effectively, providing better continuing education and more public service, etc. Some of the particular plans of the individual units of the campus follow.

III. MAJOR PROJECTIONS FOR SPECIFIC UNITS

A. College of Arts and Sciences (pp. 25-35)

1. Analyze teaching-learning process; improve instruction, particularly of general education; examine College core.
2. Increase use of credit-by-examination and placement tests.
3. Expand and improve academic advising.
4. Establish sub-colleges to offer new undergraduate programs; consider reorganization of College on divisional lines.
5. Introduce doctoral programs in economics, English, mathematics, speech-communications and possibly other disciplines, as justified by need and departmental development.
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6. Encourage faculty members and students to undertake community service.

B. College of Business Administration (pp. 36-39)

1. Attain accreditation of master's program; establish doctoral program.
2. In curriculum and research, emphasize computer applications, international business and administrative processes, in latter area serving other professional colleges of University as well.
3. Create a business administration research program.
4. Make a selective improvement in the large student-faculty ratio.

C. College of Education (pp. 40-46)

1. Establish Ed.D., M.S. in Recreation Administration and Physical Education; expand Ph.D. program; create Educational Specialist program.
2. Improve and extend in-service programs.
3. Work with other colleges on campus in preparing teachers for higher education institutions; work with community colleges in preparing teacher aides and other para-professionals for the schools.
4. Encourage curricular and teaching innovation throughout the College.

D. College of Engineering (pp. 46-54)

1. Create baccalaureate program in chemical engineering; work toward doctorate in all five graduate programs as faculty and facilities reach necessary strength.
2. Develop coordinated basic curriculum for all baccalaureate programs, easing transfer from other campuses at end of sophomore year.
3. Develop cooperative curricula and broader research programs in conjunction with other colleges of University.
4. Establish programs of continuing education and international engineering.
5. Support Information Sciences curriculum unit until possible transfer to other administrative unit.

E. School of Medicine (pp. 56-62)

1. Develop biomedical science departments and clinical faculty to teach pre- and post-doctoral programs, and also continuing education.
2. Establish programs in tropical diseases and in allied medical sciences, such as physical and occupational therapy.
3. Have outside consultants make complete financial analysis of costs and benefits of expanding School to four-year program.

F. School of Nursing (pp. 62-68)

1. Transfer technical nursing program to community colleges in 1971-72.
2. Establish state-wide committee to help long-range planning for nursing education and help coordinate nursing programs on all campuses of University system.
3. Study feasibility of introducing doctoral program.
4. Expand dental hygiene program from two to four years.

G. School of Public Health (pp. 68-72)

1. Create programs for Dr.P.H., emphasizing health education, and for PH.D., combining study of biostatistics and epidemiology.
2. Increase research activities, especially on developing health information retrieval systems.

H. School of Social Work (pp. 72-77)

1. Work toward establishing doctoral program, while improving master's program.
2. Offer multidisciplinary undergraduate major in social welfare; cooperate with other University units in developing multidisciplinary curriculum in human services.
3. Establish research center and emphasize faculty research.
4. Augment community service and provide more comprehensive continuing education.

I. School of Library Studies (pp. 77-80)

1. Strengthen offerings in use of computers for library work.
2. Increase faculty research, especially in areas of Asian and Pacific library problems; develop sister-school relationship with library schools in Pacific area.

J. College of Tropical Agriculture (pp. 80-85)

1. Strengthen integration of teaching, research and service functions of College.
2. Improve undergraduate and graduate instruction; extend doctoral programs to include agronomy, nutritional science and other fields, where appropriate.
3. Establish two-year programs for technicians, short-term training courses for agricultural work in the Pacific and S.E. Asia as well as for continuing education in Hawaii.
4. Initiate programs in land use and conservation, pollution control, handling of tropical agricultural products and agricultural journalism.
5. Restructure College administrative organization to better accomplish preceding objectives.

K. Graduate Division (pp. 87-89)

1. Concentrate on upgrading advanced degree programs in subject matter areas already under development; enter into new areas only selectively to utilize inherent advantages of this University.
2. Cap natural growth of departments with doctorate when faculty and facilities are sufficiently strong.
3. Review graduate programs frequently to rationalize degree requirements, improve quality and assure that time to complete curriculum is not prolonged.
4. Provide each graduate students with necessary faculty consultation.

L. Research Administration (pp. 89-106)

1. Coordinate program planning between research units and academic departments; to achieve this, adopt formal organization and procedures involving faculty participation.
2. Utilize opportunities for multi-disciplinary research offered by University's participation in Sea-Grant program of the National Science Foundation.
3. Emphasis in research. The University's organized research programs are too numerous to be digested in this summary, but the following listing gives some indication of where the major research units will concentrate their efforts in the next seven years.

Economic Research Center—long-range studies of Hawaii's economy.

Social Science Research Institute—culture and mental health in Asia and Pacific, survey research, Korean studies.

Pacific and Asian Linguistics Center—U.S. Trust Territory, South Pacific, S.E. Asia, Taiwan, Japan.

Hawaii Institute of Marine Biology—Hawaii fisheries and benthic animal communities; mesopelagic animal communities.

Laboratory of Sensory Sciences—application of research findings to communication, education, medicine.

Lyon Arboretum—increase collection of vanishing plant species of Hawaii and the montane tropics.

Pacific Biomedical Research Center—physiology of marine mammals; studies of Pacific island peoples.

Population Genetics Laboratory—peoples of Pacific basin.

Hawaii Institute of Geophysics—tropical meteorology; geology of oceanic islands and sea floor; tsunami wave generation; underwater sound.

Institute for Astronomy—development of major observatory on Mauna Kea; space astronomy.

Land Study Bureau—integration and computerization of state land classification data.

Water Resources Research Center—meet state's needs for water research; expand programs in Pacific islands and S.E. Asia.

Pacific Islands Studies—census of faculty with Pacific Islands interest; complete first-rate library collection.

M. University Library (Manoa) (pp. 107-112)

1. Expand collection to bring it closer to median size of comparable universities, making collections in selected fields truly excellent.
2. Show in catalog all bibliographical resources on Manoa Campus; publish catalog.
3. Provide other campuses of University system with cataloging and other routine services.
4. Determine feasibility of using computer to make library materials directly accessible to other campuses.
5. In Instructional Resources Service Center, provide faculty with consultation and workshops on newer instructional technology and techniques, as well as media services.

N. Computing Center (pp. 112-113)

1. Participate in organization of research program in information sciences to coordinate varied activities in this new field.
2. Provide up-to-date computer facilities to faculty and administration, with accompanying consulting and technical services.

O. Summer Session (pp. 114-116)

1. Work with colleges and schools of University in developing summer programs, particularly to meet needs of "regular" students.
2. Articulate course offerings with those of the community colleges and Division of Continuing Education.
3. Make additional opportunities available to "marginal" students, as through Upward Bound program.
4. Offer instruction in art of teaching to doctoral candidates and others planning to teach in higher education, working with appropriate colleges of University.

P. Continuing Education and Community Service (pp. 116-122)

1. Expand credit and non-credit course offerings, with gradual increase in general fund support.

2. Double ETV service output, particularly concentrating on adult education; establish district production centers.
3. Construct Pan-Pacific Forum for local, national and international meetings, as well as center for continuing education.
4. Build up Center for Governmental Development.

Q. Office of Student Affairs (pp. 123-129)

1. Develop planned Student Union building and programs.
2. Supply good housing for more students, including "living-learning" facilities in residence halls.
3. Expand use of Counseling and Testing Center by students who are relatively free of emotional difficulties.
4. Develop financial aid programs for low-income students.
5. Expand International Student Office to serve foreign faculty and American students needing advice on overseas opportunities.
6. Provide adequate student health service.
7. Provide improved placement and career advisory services.
8. Transfer Admissions and Records Office to Vice-President for Academic Affairs.

R. Hilo Campus (pp. 130-135)

1. Develop four-year program by stages, adding courses, staff and library support concurrently.
2. Concentrate on liberal arts curriculum, but with selected courses in professional areas, particularly in education.
3. Combine with Hawaii Technical School to offer expanded technical program.
4. Encourage interchange of students and exchange of faculty with Manoa Campus.

S. Community Colleges (pp. 135-138)

1. Develop on all campuses comprehensive programs for students seeking college-track or technical education.
2. Continue study of technical programs, to ensure their appropriateness and relevance to modern technology; establish research projects to evaluate instruction, generally.
3. Develop continuing education programs for evening or late afternoon.
4. Provide community-oriented educational services.

T. University Press (pp. 139-140)

1. Increase funding, including establishment of revolving fund to let Press grow with the University.
2. Endeavor to change state laws which often force Press to follow uneconomic business practices.

U. East-West Center (pp. 141-146)

1. Develop programs around a problem orientation, beginning with a long-range, multidisciplinary program on population.
2. In these programs, work closely with departments of the University, utilizing split appointments where mutually desirable; involve scholars from the Pacific and Asia, as well as grantees.
3. Provide more grants to doctoral candidates, who will participate in problem-oriented programs of research, learning and application of research findings.
4. Develop facilities necessary for new programs, particularly Center library of Asian materials, and obtain financing needed for this growth.

Part V: APPENDICES

APPENDIX TABLE I

FALL, DEGREE-CREDIT DAYTIME ENROLLMENT AT THE UNIVERSITY OF HAWAII, MANOA, HILO AND NEW CAMPUS ACTUAL AND PROJECTED, 1957-75

Fall Semester	Grand Total	Manoa Campus Total	Manoa Campus Undergraduates	Manoa Campus Graduates	New Campus	Hilo Campus
1957	5,928	5,741	4,906[1]	835[1]	–	187[1]
1958	6,567	6,342	5,396	946	–	225
1959	7,173	6,923	5,707	1,216	–	250
1960	7,771	7,511	6,197	1,314	–	260
1961	8,516	8,231	6,664	1,567	–	285
1962	9,549	9,150	7,379	1,771	–	399
1963	10,821	10,466	8,441	2,025	–	355
1964	12,039	11,641	9,381	2,260	–	398
1965	14,097	13,587	10,825	2,762	–	510
1966	15,343	14,772	11,420	3,352	–	571
1967	17,182	16,564	12,976	3,588	–	618
1968	17,761	17,082	13,239	3,843	–	679
Projected:						
1969	19,586	18,701	14,308[2]	4,393[2]	–	885[2]
1970	21,482	20,452	15,421	5,031	–	1,030
1971	23,307	22,187	16,482	5,705	–	1,120
1972	25,092	23,882	17,569	6,313	–	1,210
1973	25,352	24,052	17,096	6,956	–	1,300
1974	25,747	24,347	16,714	7,633	–	1,400
1975	28,986	25,345	16,999	8,346	2,121	1,520

[1] Data 1957 to 1968 from *Fact Book for the University of Hawaii, 1968-1969.*

[2] Projected data 1969 to 1975 from *Enrollment Projections, 1969-1975, University of Hawaii System,* University of Hawaii Institutional Research Office, November 1968: Table 1, p. 3.

APPENDIX TABLE II

POPULATION OF THE STATE OF HAWAII, 1930-1975

Year	Number (in thousands)	Index
1930	368[1]	49.3
1940	423[1]	56.6
1950	500[1]	66.9
1960	633[1]	84.7
1965	747[2]	100.0
1970	849[2]	113.7
1975	962[2]	128.8

[1] U.S. Census.

[2] *Population Projections,* State of Hawaii General Plan Revision Program, Part 4, (State of Hawaii Department of Planning and Economic Development, 1967), p. 20.

APPENDIX TABLE III

DEGREE PROGRAMS OFFERED AT THE UNIVERSITY OF HAWAII, MANOA CAMPUS, 1961-62 TO 1968-69

Academic Year and College or School	Bachelor's	Master's	Ph.D.
1961-62	47[1]	36[1]	7[1]
1962-63	62	50	16
1963-64	62	51	18
1964-65	59[2]	59[2]	18[2]
1965-66	60	63	21
1966-67	64	66	25
1967-68	64	67	27
1968-69	65	69	28
Arts and Sciences	41	36	17
Business Administration	10	1	—
Education	3	6	1
Engineering	4	5	1
Library Studies	—	1	—
Medicine	2	6	5
Nursing	1	1	—
Public Health	—	2	—
Social Work	—	1	—
Tropical Agriculture	4	10	4

[1] Data from 1961-62 to 1963-64 from University of Hawaii General Catalogs and Graduate School Bulletins.

[2] Data from 1964-65 to 1968-69 from *Fact Book for the University of Hawaii, 1968-69.*

APPENDIX TABLE IV

DEGREES AWARDED AT THE UNIVERSITY OF HAWAII (OTHER THAN ASSOCIATE DEGREES, DIPLOMAS AND CERTIFICATES), 1957-58 TO 1967-68, AND PROJECTED 1972-73 AND 1975-76

Year	Total	Bachelor's	Master's	Doctor's
Actual:				
1957-58	792[1]	735[1]	54[1]	3[1]
1958-59	887	812	71	4
1959-60	965	881	81	3
1960-61	948	832	109	7
1961-62	983	869	112	2
1962-63	1,160	893	152	15
1963-64	1,301[2]	983[2]	304[2]	14[2]
1964-65	1,565	1,183	362	20
1965-66	1,900	1,444	427	29
1966-67	2,098	1,515	555	28
1967-68	2,699[3]	1,833[3]	819[3]	47[3]
Projected:				
1972-73	4,700[4]	2,900[4]	1,600[4]	200[4]
1975-76	6,150	3,600	2,250	300

[1] Data from 1957-58 to 1962-63 from *An Academic Development Plan for the University of Hawaii/January 1964*, p. 123.

[2] Data from 1963-64 to 1966-67 from *Fact Book for the University of Hawaii, 1967-68*, p. 10.

[3] Data for 1967-68 from Admissions and Records Office.

[4] Estimated by Offices of Institutional Research and Academic Development.

APPENDIX TABLE V

DISTRIBUTION OF STUDENT MAJORS, BY COLLEGE
MANOA CAMPUS
Fall 1968 and Projected 1972 and 1975

College	Fall 1968			Fall 1972			Fall 1975		
	Total	Under-graduates	Graduate Students	Total	Under-graduates	Graduate Students	Total	Under-graduates	Graduate Students
TOTAL	17,074	13,231	3,843	23,882	17,569	6,313	25,345	16,999	8,346
Pre-professional[1]	1,193	1,193	–	1,538	1,538	–	1,210	1,210	–
Undeclared[1]	4,449	4,449	–	4,958	4,958	–	3,897	3,897	–
Unclassified	1,769	695	1,074	1,940	880	1,060	1,750	500	1,250
Special Graduates	79	–	79	82	–	82	109	–	109
Classified	9,584	6,894	2,690	15,364	10,193	5,171	18,379	11,392	6,987
Classified, by College:									
Arts & Sciences	3,785	2,563	1,222	5,408	3,230	2,178	6,742	3,863	2,879
Business Administration	1,729	1,508	221	2,893	2,451	442	3,072	2,488	584
Education	1,576	1,054	522[2]	3,310	2,111	1,199[2]	4,128	2,542	1,586[2]
Engineering	1,010	916	94	1,534	1,293	241	1,751	1,271	480
Medicine	172	70	102[3]	328	138	190[3]	366	166	200[3]
Nursing	327	315	12	303	268	35	373	323	50
Public Health	83	–	83	110	–	110	142	–	142
Social Work	115	–	115	196	–	196	259	–	259
Tropical Agriculture	666	468	198	1,057	702	355	1,236	739	497
Library Studies	121	–	121	225	–	225	310	–	310

[1] Largely freshmen and sophomores
[2] Includes Masters, Ph.D., CPC, and 5th-year students
[3] Includes medical students
Note: No projections for 1972 and 1975 are made of majors in the Information Sciences curriculum which was offered in Fall 1968 for the first time.

APPENDIX TABLE VI

DISTRIBUTION OF STUDENT CREDIT HOURS, BY COLLEGE
MANOA CAMPUS
FALL 1968, AND PROJECTED 1972 AND 1975

College	Fall 1968		Fall 1972		Fall 1975	
	No.	V%	No.	V%	No.	V%
Total	215,211	100.0	300,212	100.0	314,280	100.0
Arts & Sciences	156,783	72.9	204,411	68.1	203,152	64.6
Business Administration	17,548	8.2	32,733	10.9	34,245	10.9
Education	16,550	7.7	29,490	9.8	35,972	11.5
Engineering	6,758	3.1	9,822	3.3	12,401	3.9
Medicine	3,333	1.6	4,935	1.6	5,591	1.8
Nursing	2,828	1.3	2,696	0.9	3,247	1.0
Public Health	1,153	0.5	1,573	0.5	2,034	0.7
Social Work	1,658	0.8	3,049	1.0	3,896	1.2
Tropical Agriculture	5,445	2.5	9,002	3.0	10,341	3.3
Library Studies	1,551	0.7	2,501	0.8	3,401	1.1
Other	1,604	0.7	–	–	–	–

Note: No SCH projections for Information Sciences courses are made for 1972 and 1975 since that curriculum was first offered in Fall 1968.

APPENDIX TABLE VII

COMPARATIVE LIBRARY STATISTICS FOR THE UNIVERSITY OF HAWAII AND ELEVEN SIMILAR STATE UNIVERSITIES, 1966-67[1]

UNIVERSITY	Total Students[2]	Volumes At Year End[3]	Receipts In Year Volumes	Library Staff[4]	Total Operating Expenditures
University of Virginia	19,199	1,759,166	79,569	131	$1,323,002
University of Kentucky	18,484	1,222,730	92,830	148	1,566,447
Oklahoma University	17,946	1,084,690	63,806	92	996,503
University of Georgia	17,488	772,830	94,538	108.5	1,652,572
University of Nebraska	16,634	850,578	30,958	105	1,145,503
Iowa University	16,355	1,354,178	72,385	149.75	1,853,301
University of Kansas	14,764	1,266,745	68,201	116	1,583,187
Iowa State University	14,014	611,155	26,310	64.7	861,021
University of Oregon	13,399	980,038	55,412	115.75	1,300,013
Florida State University	13,200	826,874	83,476	98	1,247,623
University of North Carolina	13,130	1,455,839	74,149	183	1,729,949
MEDIAN	16,355	1,084,690	72,385	115.75	1,323,002
University of Hawaii	17,486	552,934	81,090	133	1,495,849

[1] General data from Association of Research Libraries, Academic Library Statistics, 1966/67.

[2] Student count from *U.S. Office of Education, Education Directory, Part III, Higher Education, 1966/67.*

[3] Volumes calculated as bound volumes.

[4] Staff includes professionals and non-professionals but not student helpers.

OFFICE OF STUDENT AFFAIRS

		Actual		Projected	
		1963-64	1967-68	1972-73	1975-76
Admissions and Records	a. Registrations	30,910	53,538	82,749	103,503
	b. Transcripts	17,393	35,121	54,284	67,896
Financial Aids	a. Scholarships:				
	No. of Scholarships	622	757	861	1,077
	Value	$146,335	$ 256,497	$ 291,736	$ 364.924
	b. Loans:				
	No. of Loans	(1,814)	(2,539)	(3,924)	(4,908)
	Value	$686,843	$ 738,573	$1,141,457	$1,427,694
	c. Student Help:				
	No. of Students	(1,574)	(2,507)	(3,875)	(4,847)
	Expenditures	$787,364	$1,582,979	$2,446,767	$3,060,511
Student Housing	Students in Dormitories (per sem.)	659	684	1,184	2,184
Counseling & Testing	a. Clients	3,699	4,910	5,375	6,723
	b. Contacts	7,882	17,989	27,804	34,777
International Students	Contacts	4,608	7,086	10,952	13,698
Student Health	Contacts	18,528	23,000	35,549	44,463
Student Activities	No. of Groups Served	157	102	158	198
	No. of Individuals Served	18,080	30,130	58,227	96,769
Placement & Career Planning	No. of Interviews	738	1,014	1,567	1,960
Staff (FTE)		58	99	114*	207
Professional		19	47	58	92
Civil Service		39	52	56	115

*Data on staff is for 1968-69.

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